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Railway Age

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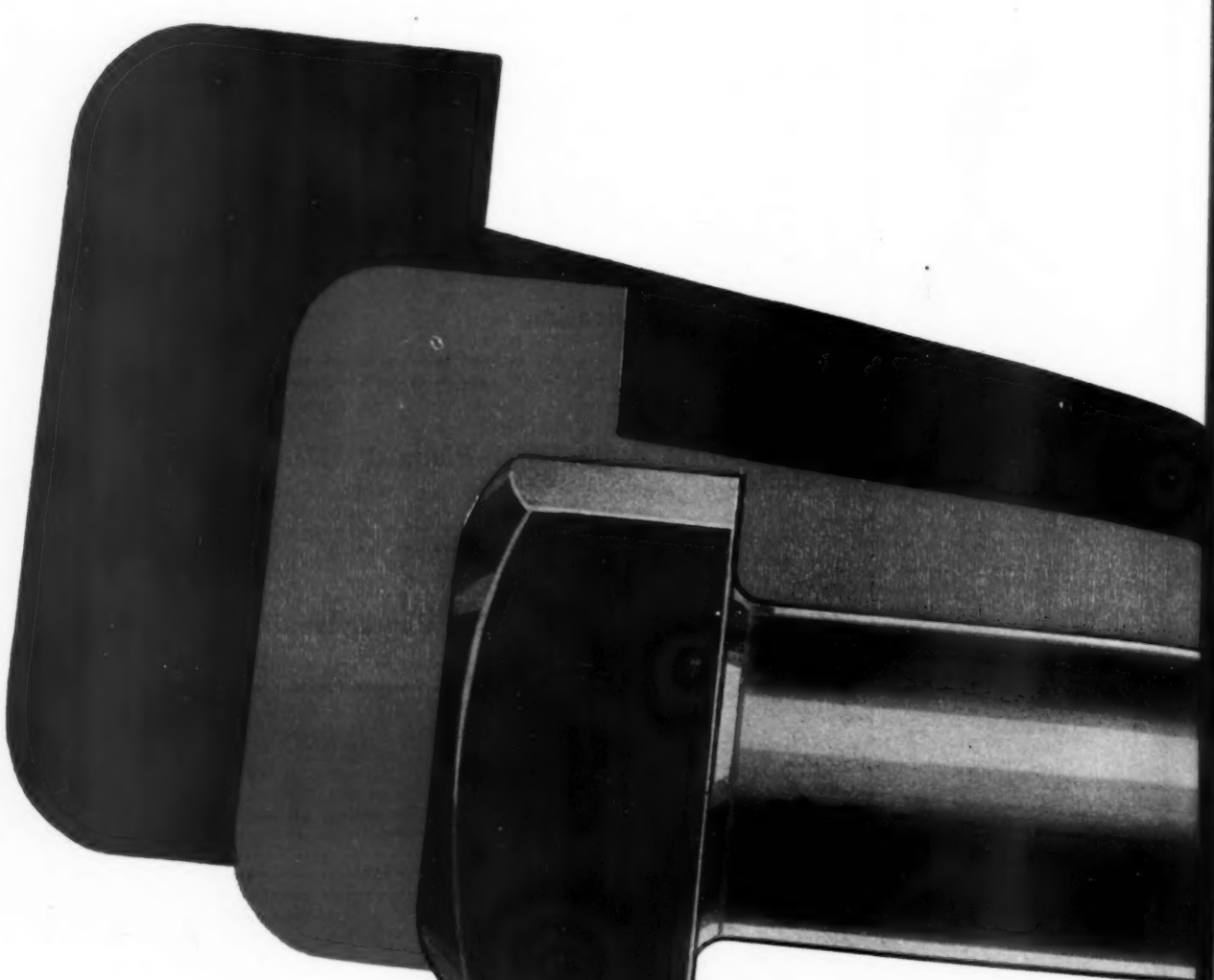

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Railway Age

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Probable Economic Effects of the O'Fallon Decision

THE decision of the Supreme court in the O'Fallon valuation case undoubtedly will, in the long run, benefit the railways by causing them to be allowed to earn more net operating income than they otherwise would have been permitted to earn. Many persons believe this will result in injury to the public because, as they think, the larger is the net return the railways are allowed to earn the higher freight rates must be. One might infer from much that is being said that railways are allowed to charge rates solely to earn net operating income.

The fact that since the war more than 80 cents out of every dollar earned has had to be used to pay operating expenses and taxes, and that therefore operating expenses and taxes have exerted four-fifths of the influence, and net operating income only one-fifth of the influence that has determined the general level of rates, is overlooked. Another and equally important fact overlooked is that an increase in net operating income may be the most potent means of enabling the railways to reduce their operating expenses, and, in the long run, of justifying lower rates. The operating expenses of the Class I roads in 1928 were about four times as large as their net operating income. Therefore a 10 per cent reduction in their operating expenses at present would be about equivalent to a 40 per cent increase in their net operating income. Their net operating income last year was equivalent to a return of 5¾ per cent upon a valuation of $20,760,000,000, and therefore a 40 per cent increase in net would make it equivalent to a return of 5¾ per cent on a valuation of $29,000,000,000. Now the railways actually reduced their operating expenses during the last five years by an amount more than equivalent to a 40 per cent increase in their present net operating income. In fact, excepting for advances in wages, they would have reduced their operating expenses during these five years by an amount equivalent to a 60 per cent increase in their net operating income of last year.

Economies Due to Capital Expenditures

The huge economies in operation effected within the last five years were due principally to improvements in physical properties and operating methods that were made possible by the investment of a large amount of capital. And this fact is the answer to those who believe that if the O'Fallon decision results in larger net operating income for the railways it will necessarily result in permanently higher rates, as well as to those who are dubious as to whether the railways can successfully cope with the economic conditions to which they will be subject in future. We say "economic conditions," and not political conditions. We include in political conditions those nominally economic conditions which may be created by application of the Santa Claus theory of government. If the public is going to continue to subsidize competition with the railways, and even to cause the government itself to engage more largely in competition with them, upon the theory that whatever the government spends in promoting highway and waterway transportation does not cost anybody anything, the railways may have serious difficulty in solving their problems in a way that will be beneficial to both them and the public.

Importance of Character of Service

"The railroads must still continue to be the backbone of transportation in this country," said R. H. Aishton, president of the American Railway Association, at the recent convention of the Transportation division of that association, "and the answer to the transportation questions continually arising is to take advantage of every means developed through research, adaptation, practical experience and co-operation leading to better service, more economical service, more efficient service and safer service, and in the end the public, who will decide and determine what form of transportation they use, will go to that form which affords them the greatest satisfaction." The satisfaction the public derives from any form of transportation depends partly upon its speed, reliability and convenience, and partly upon what must be paid for it. Both the character of the service and the cost of rendering it will be largely determined in the future, as they have been in the past, by the improvements made in railway properties by the investment of capital.

Good service helps to develop new business. It also helps to meet the competition of other means of transportation. The railways have been successful in the past in competing with carriers on inland waterways, not because their rates have been lower, which usually has not been the case, but because their service has been so much faster, more dependable and more convenient. Those who are advocating extensive development of inland waterways upon the ground that rates by water will be lower than by rail largely disregard the fact that, as Mr. Aishton says, shippers "will go to that form (of transportation) which affords them the greatest satisfaction", and that the satisfaction afforded them depends largely upon the character of the service. There never was a time when shippers demanded and received

from the railways as good service as now; and it always will be physically impossible for inland water carriers to render as good service as railways. The problem presented by the competition of modern carriers by highway is somewhat different, but it is, nevertheless, equally true that the success of the railways in meeting the competition of motor coaches and trucks will, in the long run, be largely determined by the comfort, speed, convenience and dependability of service. The character of the service the railways will be able to render will, of course, be determined by the improvements they are able to make in their physical properties, and the improvements they are able to make will be determined, in turn, by the amount of net operating income they are allowed to earn and the amount of new capital they can consequently raise and invest.

No Limit to Operating Economies

It has often been said that the railways were approaching the limit of the economies in operation that could be effected. And yet they have achieved relatively as large economies in operation during the last five years as ever before in any period in their entire history. There does not appear to be any real limit to the extent to which, over periods of time the economy of operation can be increased. Railway costs include taxes, operating costs and capital costs. The managements have no control over taxes. Operating costs are incurred principally in employing labor and buying fuel and materials. The greater is the output of ton miles and passenger miles of service for each hour of labor and ton of fuel or materials used, the greater is the economy of operation. The output of transportation service secured in proportion to the amount of labor, fuel and materials used depends upon the adaptation of all physical facilities and operating methods to the saving of labor, fuel and materials. The constantly increasing adaptation of physical facilities to the saving of labor, fuel and materials requires constant investment for the improvement of facilities. It would be an exaggeration to say there is no limit to the amount of capital that could be invested with the result of reducing the amount of labor, fuel and materials required more in proportion than capital charges were increased; but it certainly always has been true in the past, and is true now, that every railway could greatly increase the investment in its properties in ways that would result in large operating economies.

Should Tend to Reduce Railway Charges

Vast economies have been secured by the investment of capital in the past. We know of no reason for doubting that relatively as large economies could be effected in the same way in future. The decision in the O'Fallon case, if it results in the railways being allowed to earn an increased net operating income, will enlarge the amount of capital they can raise and invest in economy-producing improvements. The resulting reductions in operating expenses probably will save more than the increase in net operating income and thus the decision will tend in the long run, to reduce rather than increase the revenues the railways will have to collect.

The decision in the O'Fallon case is not a victory for the railways and a defeat for the public. It is a victory for both of them, because, while tending to increase the amount of net operating income the railways must be allowed to earn, it will, for that very reason, tend to promote both improvements in service and economies in operation.

The Railways Fight Back for Passenger Business

IF current developments are any indication, this summer will see the most concerted effort that the railways have yet made to recover the large amount of passenger business which they have lost in recent years to highway competitors of one kind or another. With Pullman traffic growing steadily, the railways now are turning their attention especially to the cultivation of passenger traffic for their day coaches. Scarcely a week goes by in which one railway or another does not announce a new fast day-coach train, with de luxe features of one sort or another. Such a train is the new "Blue Comet" of the Central of New Jersey, which appears to have attracted more attention than any other train announced during recent years.

Furthermore, the railways are going farther than usual in the establishment of low round-trip and excursion rates. This step is being taken in appreciation of the fact that much of the popularity of the motor coach, as a means of travel, is due to the low rates which customarily apply to travel in it.

It will be interesting to see how successful these measures prove to be in attracting additional passenger traffic to the railways. The thought is entertained in some quarters that these activities on the part of the railways will effect a return to their trains of many passengers now traveling by motor coach. It appears more likely, however, that the motor coaches will continue to attract a large volume of minimum-rate travel, while the new travel bargains being offered by the railways will develop a substantial new traffic. The potential market for travel is being greatly widened by the introduction of new, more convenient, more comfortable and more economical transportation facilities. There is, and always will be, plenty of business for all kinds of carriers that cultivate the market in the proper manner.

Passenger Officers to Meet in Winnipeg

THE American Association of Passenger Traffic Officers will meet in Winnipeg on September 16-17. Probably no railroad department has at the present time a more pressing problem upon its hands than that of the members of this association. This problem, which arises from the decline in business due to highway competition, has two aspects:

1. How to hold existing business to the railways, or compensate for losses by attracting new traffic.

2. How to reduce the costs of service in proportion to the losses in revenue.

There are some railroads which are not losing passenger business—very few to be sure, but still a few. If the detailed experience of these railroads—how they are managing to hold business while others are losing it—could be carefully studied and made known, methods might be disclosed which could be generally applied with profit.

Consideration of gross business done, however, is not alone sufficient. The margin of profit is also a consideration which the passenger officers must take

into account. When gross business declines, unless it is possible to reduce service and overhead costs in proportion, the margin of profit tends to fall at an even more rapid rate. Railroad passenger service is the least profitable big business in the country. What can be done to reduce costs without at the same time entailing still further losses of business?

The railroad operation of motor coaches on the highways has made tremendous strides since the passenger officers' last convention. The experience of those railroads which have adopted this device should be of great value to those who have not yet utilized it, or which are only beginning to do so. Similarly with rail motor cars. Are the new bright-colored trains which some of the railroads are placing in service proving successful? Does business respond to the new comforts and faster schedules which the railroads are offering? What is going to happen in air transportation?

These are some of the many questions to which passenger officers attending the Winnipeg meeting will seek answers. Because of the changes which have occurred in the travel habits of the public in recent years, what had been a settled phase of railroad work has developed into a frontier, where pioneering and experimentation offer the only way to success. The convention at Winnipeg should make generally known the directions in which such pioneering is proving fruitful.

Track Grouping in Yards Equipped with Retarders

IN the earlier installations of car retarders, this equipment was added to existing yards laid out with a series of classification tracks leading from one or more ladders. With this arrangement, one set of retarders was located on the hump incline and a separate retarder was required on each main-track lead as well as on each of the classification tracks to secure the proper retardation. This arrangement required a considerable number of retarders; as, for example, in the northbound yard of the Illinois Central, at Markham, Ill., where there are 121 retarders for 67 tracks and at the East St. Louis, Ill., yard of the same road where there are 53 retarders for 26 tracks.

The next development was to re-arrange the tracks and connect two or three tracks in a single group with one retarder on the lead to such a group. This method provided the maximum speed of classification by separating the cars quickly, but still required a considerable number of retarders. For example, in the Selkirk yard on the New York Central there are 33 retarders for 25 tracks. Likewise in the Portsmouth, Ohio, yard of the Norfolk & Western there are 34 retarders serving 37 tracks.

The next development in yard layout was to group from four to six yard tracks on one lead track, with a retarder on this lead to serve all of the tracks in the group. Unique arrangements of lap switches were designed to bring the switches in each group close together and separate the cars as quickly as possible. Examples of this type of layout are the Boston & Maine yard at Mechanicville, N. Y., with 17 retarders for 36 tracks, and the Texas & Pacific yard at Ft. Worth, Tex., with 21 retarders for 32 tracks. However, the use of one lead for five or six tracks necessitates that a greater number of cars follow each other with the slow moving cars interfering with the fast moving ones.

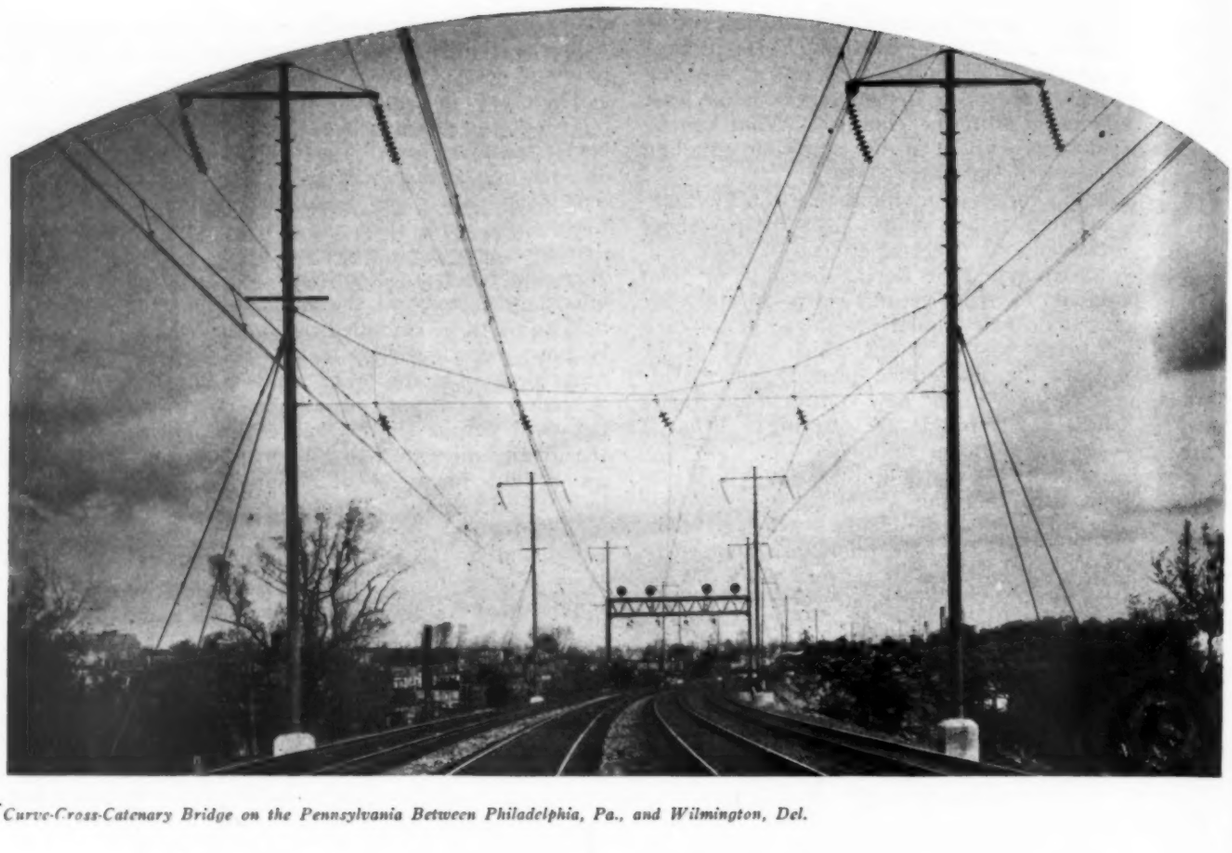
Therefore, in designing a yard to be equipped with retarders, the problem is to determine the proper number of tracks to include in each group, balancing speed of operation against first cost. The question of maintenance is to a great extent balanced; where few retarders are used, they are worked much harder and, therefore, require correspondingly greater maintenance and renewal. Continuity of operation is another important factor. If the traffic is bunched or can be held so as to be classified on one or two tricks, it may be more economical to install the fastest possible arrangement. On the other hand, if the traffic requires operation of the yard on all three tricks on a schedule that will permit slightly more time for classification, the arrangement with a larger number of tracks in a group, with fewer retarders, may be best suited to the local requirements. The reduced first cost of the retarders for this arrangement extends the field for such equipment to the smaller railway yards as well as to equipment to the smaller railway yards as well as to important fast traffic.

Store-Door Delivery on the Pacific Electric

FEW subjects have aroused as much difference of opinion among railway officers as the question of whether a railway should provide store-door collection and delivery service to its shippers and consignees. By some, this is looked upon as a necessary part of the transportation service which railways should provide. By others, store-door collection and delivery is considered beyond the province of the railways. A few roads have established this kind of service in one form or another, but the great majority have avoided it.

One of the arguments against store-door collection and delivery has been the contention that there is no demand for such service. Some light may be thrown on this particular phase of the subject by the experience of the Pacific Electric. This company, in March of this year, began to provide store-door collection and delivery service at a number of points on its line, through a motor transport subsidiary, the Pacific Electric Motor Transport Company. At the outset, 24 cities were given this service. Now, prompted by the increasing popularity of the service and by the requests of shippers that it provide it at additional points, the Pacific Electric had added 20 cities to the list of those at which the Pacific Electric Motor Transport Company is operating, so that practically all points in southern California, except Los Angeles Harbor, are now being given store-door collection and delivery service by the railway.

This would appear to offer an adequate answer to the contention that there is no demand for store-door collection and delivery service. It does not settle, of course, the broad question of whether or not railways in general should provide this form of service to their patrons, but it is an interesting commentary upon the reception which patrons accord to improvements in railway service, and particularly interesting at this time when the volume of certain kinds of railway traffic is diminishing.



Curve-Cross-Catenary Bridge on the Pennsylvania Between Philadelphia, Pa., and Wilmington, Del.

Railroad Electrification*

Electric traction has been adapted to nearly all kinds of service and railroads can predetermine its usefulness

By George Gibbs
Consulting Engineer

THE electrification of steam railways in the United States began over 30 years ago in a small way, at a time when the art was in its infancy, and when there was no real data available from actual experience as to the reliability and economy of this form of traction. Its growth of application was slow but fairly regular until the world war introduced a period of stagnation in new enterprises. Post-war adjustments, and the return of the railways to private ownership made it possible for the railway companies to proceed with major improvements; consequently numerous projects for electrification were proposed and several important ones put under way.

The mileage of electrified railways in the United States, while considerable, does not present a very impressive total compared with that of all railways. There are over 250,000 miles of steam railways in the country, having an aggregate of about 420,000 miles of track, and there are about 63,000 locomotives in use. Electrified railways in operation total about 1665 route miles and 3990 track miles, and use about 450 electrified locomotives and 1780 motor cars. New projects now authorized and under way will add about 230 route miles and 720 track miles.

The several reasons for adoption of electric traction by steam railways may be illustrated by following its step by step use on one of the great systems of the country—the Pennsylvania.

In the year 1902 that company determined upon building a great passenger terminal in the heart of New York. It contemplated an underground station and yard to be reached by sixteen miles of tunnels passing underneath two rivers. A form of motive power for the trains other than steam was essential to the project. Economy was not a factor; it was only necessary that it be adequate and reliable.

For extensions to cross-country lines the case was different; and as the advantages of electricity over steam might be important and had been at the time undetermined, the company undertook the electrification of its line from Camden to Atlantic City, N. J., a distance of 75 miles. This installation was completed in 1906 and may be regarded as an effort to determine the traffic-fostering possibilities, economy and reliability of handling passenger services by electric motor-car trains.

About the time that these two projects were in prog-

* Paper presented Wednesday, June 5, at annual convention of National Electric Light Association.

ress, a subsidiary road—the Long Island—was faced with the necessity of removing its tracks from the surface of a street (Atlantic Avenue, Brooklyn). This was done by constructing tunnels and an elevated road. It was desired, also, to use the new Pennsylvania tunnels and terminal in New York City for certain of its suburban services. These various conditions necessitated the equipment of 90 route miles on various branches for electric operation to serve the two underground terminals within the city. This electrification was, also, one of necessity to conduct passenger services terminating within a great city and under physical conditions prohibiting the use of steam locomotives.

The next undertaking of the company was at Philadelphia and its purpose was an essentially different one. The Broad Street Station is a stub-end terminal serving all trains, through and suburban. The approach is by a long elevated viaduct restricted in width by important city streets on either side. With growth of business congestion and delays constantly occurred, largely on account of the great number of movements through the throat crossovers. A considerable number of these movements were "idle," i.e., empty suburban trains and their locomotives to and from the yard. It was imperative to do something for relief; the most practicable solution, adequate for a time, at least, was to electrify the suburban services in order to use motor-car trains into the terminal. The reduction of idle movements thus secured, it was figured, would be equivalent to a 24 to 30 per cent increase in station capacity, depending upon the number of lines electrified. Even if the project should not result in important direct-operating savings over steam traction, these would, at least, amount to something and relief from former congestion would be secured, whereas a widening of the approach viaduct would not give any operating saving. This case illustrates the possibility of effectively employing electric traction to increase capacity under certain special conditions.

The next undertaking was the electrification of the New York Connecting Railroad, finished in 1927. This is a two and four track line, largely for freight service, but also for passenger trains into the Pennsylvania Station from the New York, New Haven & Hartford. The connection is over the Hell Gate Bridge and thence to the Pennsylvania tracks in Long Island City for passenger service. For freight, the line connects with the Long Island Railroad, passing around the congested destricts of the city to a terminal at Bay Ridge in the lower harbor, from which a car-ferry runs to a large yard of the P. R. R. on the New Jersey shore. The purpose of this electrification was to effect operating economies and save time in the dispatch of freight from New England points to the south and west by avoiding a change from steam to electric engines within the city and to increase train weights handled over the heavy bridge grade; to deliver local freight electrically to industrial plants within the city.

Heavy Traffic Main Line Electrification

The latest and most far-reaching plan of the company involves full divisional main line electrification for all services on its four-track main line from New York to the South and West. It is by far the most extensive and costly project of the kind yet undertaken anywhere—in miles of track to be electrified, in volume and density of passenger and freight business handled and in size and amount of equipment required. It will be done in sections; the first, from Philadelphia to Wilmington is now complete; the second, from Philadelphia to Trenton, N. J., is under way; the other sections will follow immediately. The work is to be completed for through passenger trains hauled by electric locomotives at the time the new main passenger station at West Philadelphia is ready for service, and for operation of all suburban services by motor-car trains into a new underground terminal adjoining the present Broad Street Station. It will enable longer passenger trains and much heavier freight trains at higher speed to be operated. This means an important saving in time and a clearing up of existing congestion on the New York Division. By making at the same time improvements in freight terminals and yards, new and desirable operating methods will be possible. All of these changes will, it is figured, result in large direct and indirect economies, and will increase business, especially in perishable commodities and thus bring additional revenue to the Company. This important electrification project may, therefore, be said to be for economy, for relief of congestion, as a revenue producer, and for the handling of through passenger service into two underground terminal stations (New York and Philadelphia) without change of power en route. The results, economic and otherwise, of this great undertaking will be watched with keenest interest by the railway world.

For Heavy Freight Traffic on Severe Grades

These enterprises of the Pennsylvania illustrate the progressive steps taken to develop heavy electric traction for all kinds of traffic, and for the general reasons which have usually guided railways in taking up such enterprises. As further illustrating the capabilities of the new motive power, there should be mentioned the installations on the Norfolk & Western and the Virginian over the Alleghany mountain grades. These—especially the latter case—employ the heaviest train units operated anywhere in the world. The Norfolk & Western electrification has been in successful operation since the year 1915; the Virginian started electrical operation in 1925. The reasons for both of these undertakings were the expected superior economy of electric traction for long freight train operation over heavy grades, the possibility of increased running speeds, and the consequent elimination of congestion at critical points on the lines. In these cases the roads were obliged to obtain in some way increased capacity at certain points which constituted "bottle-necks" in the divisional operation. Electrification obviated the necessity of undertaking track additions in a country where this would be unusually expensive, so that the estimated cost of the otherwise essential double-tracking might be considered as a credit against the cost of electrification. Under such circumstances the direct savings from electric haulage, for the volume of business conducted, have more than carried the additional fixed charges and made the electrifications directly profitable.

There is one other special field in which electric haulage has been found efficient and economical, and that is in freight yards for shunting and classification purposes. In such work electric locomotives are greatly superior to steam shifters in ease of control and prompt starting characteristics—a matter of importance in making short runs and numerous cuts; they are, also, very economical, because they waste no fuel when not in motion. Electric shifting has been most largely employed up to date by the New Haven in one of its terminal yards. A profitable future field for yard operation by electricity will doubtless be found on many railways.

It is evident from the sketch above given that electric haulage has been tried out for every condition met with on steam railways; it has demonstrated by years of trial that the present development and perfection of apparatus from the power house down to the propelling wheels of the train will produce reliable and useful results from an

operating standpoint; it is an efficient tool for railway use in effecting economies; and is often a "business getter."

This is not a technical paper, and, therefore, I cannot attempt to explain the electrical characteristics and differences of "systems". They may be defined and classified by the kind of current, "direct" or "alternating", used to propel the motors of the train. To the general public the noticeable difference between systems is in the contact means used to furnish power to the train itself, as this feature obtrudes itself to view everywhere. It is either a contact rail alongside of and at or near the track level, or a wire and its supporting structures placed over-head. The first mentioned of these devices has a limited application. Therefore, as electrification has tended to extend its application to all railway distances and conditions of traffic, the third rail contact device has become out of date and has now practically disappeared from the picture; the overhead contact device has become the standard for all new railway electrification. In starting upon the design of a traction installation the plans determined upon as to system and power simply should be comprehensive enough to apply to unlimited extension of the electrification and to conduct any and all the services of a trunk line railway; this means that any system adopted should possess the characteristics of flexibility and applicability to unlimited extension and unlimited power requirements at the train. All electrical traction systems now in use employ a centralized source or sources of primary power supply to be transmitted along the railway to local points, where it is transformed or converted into power suitable for use on the trains.

Costs and Economy

The first cost of electrifying a railway is very great. Speaking in very general terms, the equipment costs may be divided roughly into three parts, each of substantially the same magnitude; namely, one-third for the power generation, transmission and conversion; one-third for the distributing and contact elements; and one-third for the motive power on the trains. All of these are, naturally, subject to considerable variation, in accordance with the traffic and physical conditions of the particular railway. In addition, the application of electric traction requires a more or less extensive track re-arrangement, the acquisition of additional real estate, changes in or removal of many structures, and radical changes in signal and communication systems. These taken together add a considerable sum to the first cost of an electrification.

It is because of high first cost that the progress of electrifying steam railways has been quite slow. Even if the superior economy and the indirect advantages resulting could be shown to warrant the departures from steam traction, the prodigious outlay of new capital required has often made the change impossible. The direct economies secured from electric traction are practically all in fuel saving, in train labor and in cost of repairs of motive power. These direct economies are produced in part by changes in operating methods, that is, by using heavier and fewer trains for a given volume of traffic and the elimination of stops, such as for coal and water; the saving is further influenced by changes in train speeds. All of these direct economies taken together may amount to a considerable sum, but unless traffic is very dense or the conditions very peculiar and favorable, such as heavy grade work, they will, unfortunately, not be found sufficient to pay a profit over and above the additional fixed charges which the railway must assume for the new equipment, and will sometimes not even carry the charges. The indirect saving advantages anticipated, therefore, are always very important in deciding upon an electrification.

Improvements in Steam Traction

During the past fifteen years, great progress has been made by the railroads in effecting more intensive and economical use of their equipment and facilities. For instance, the accomplishments in improving steam locomotive design are impressive. In spite of large growth in business, there are actually fewer locomotives now in service than there were in 1914—63,000 now against 63,500 in 1914. The reason is that the amount of work performed per locomotive has greatly increased. Practically, the steam locomotive has been completely redesigned during this period. Its hauling capacity has been raised so that from the same number of locomotives the combined tractive effort is now 2,676,000,000 lb. against 1,932,000,000 lb. in 1914. The average locomotive weight has risen from 86 to 112 tons. The gross ton-miles per locomotive have increased from 8,810 to 19,679 and the average freight train speed (running and standing times included) has risen from 10 to 12.8 miles per hour.

The locomotive improvements made are in many directions: Increased size and adhesive weight; larger boilers which require less forcing; automatic stokers; super-heaters; feed water heaters; improved valve motion; also the use of cast steel to lighten parts. While some of these add complication, the cost of repairs per locomotive mile has actually been reduced—and greatly reduced per ton mile hauled. By these improvements fuel economy has been increased and is now very satisfactory. In other ways, also, the railways have succeeded during the past few years in effecting more intensive use of their existing facilities, so that it becomes more and more difficult to make out a good case for the substitution of electric traction, as regards direct economies produced. This, of course, tends to reduce the field for same to special cases and for special conditions. This does not mean that electrification will stop, but it does mean that the complete supersession of the steam locomotive by the electric is in the far and dim distance. It also emphasizes the importance of proceeding with projects of the kind only after careful and thorough investigation of the probable returns both to the railways and the public.

Compulsory Electrification

Agitation aimed to force railways to electrify should be discouraged, especially legislative enactments passed with little or no regard to cost or results. Such will only delay progress in meritorious projects. Thus, a number of years ago an ordinance was passed in Chicago compelling all railways to electrify within the city as a smoke abatement expedient. An impartial investigation of the probable results to both contending parties, by a committee of the Association of Commerce, showed that as regards smoke production the railways stood fourth on the list of industries in the city. The elimination of the steam locomotive would, therefore, not improve atmospheric conditions in very marked degree. As regards costs, the report showed that electrification within the city would cost on a pre-war basis, $190,000,000 and the "precipitated costs" outside $96,000,000 additional; these figures would be doubled, at least, now. The net yearly saving possible was shown to be only $2,337,000. This meant an annual deficit of $14,610,000—a huge continuing burden sought to be placed upon the railways and the public. Fortunately, the report was convincing and killed the project, but the whole in-

cident has made the railways there hesitate to undertake any electrification for fear that a start would entail being forced to extend it beyond their ability to assume the burden.

A similar situation confronts the railways at present in New York State. The enactment of a legislative act seeks to compel them to discontinue the use of steam by completely electrifying all lines and services within the limits of cities of 1,000,000 or over population. As an example, this means for the Long Island Railroad alone an expenditure of $23,000,000, of which about $10,000,000, would be required outside of the city to make such service usable. This is a staggering burden for a small road and must be assumed in advance of any real need for it or a sufficient practical return to any one.

All this sort of thing is very discouraging as regards real progress; railway companies should be trusted to adopt electric traction where it will increase comfort and attract business, or will reduce expenses so as to better meet decreasing rates and competition from other methods of transit. I am sure this association can be relied upon to favor this point of view and to oppose tendencies of a kind which may injure the railways.

As this association represents producers and distributors of electric energy for all public purposes, it is fitting that I should touch somewhat fully upon the characteristics of a suitable supply for heavy railway traction.

The services to be met are various, and introduce different load conditions; suburban traffic loads have high morning and afternoon peaks, the latter corresponding to commercial lighting peaks and coinciding roughly in time; heavy grade work—especially for freight—shows peaks occurring at random, due to the starting and bunching of long trains; accidental peaks occur in all services, due to congestion of business and power derangements which may occur at any time in any electrification and may spread over several hours' time. There may be, furthermore, abnormal passenger train peaks as the result of special movements, such as race meets, excursions and the like. As electrification extends on a road and becomes divisional and is used for all services combined, the normal power curve smooths out and the load factor improves, but seasonal variations will still occur.

Formerly and before the days of great commercial power companies having inter-connected systems, the railways were obliged to construct their own power plants for electric traction loads; now these outside wholesalers of power are found almost everywhere and are available for railway power supply. Samuel Insull in his paper before the American Institute of Electrical Engineers in 1912 gave an elaborate analysis of the effect of railway loads in producing a diversity factor for a centralized power system, and in this way making it possible to reduce capital requirements and to effect a reduction in power rates of all kinds to the community at large. This paper is very interesting and, while out of date, it nevertheless accurately foretold some tendencies which have operated recently to concentrate the production of electrical energy for all purposes in the hands of a few large companies with modern plants inter-connected so as to produce reservoirs of power, each serving a large section of the country. This modern development is an important one and follows from the perfection of power house machines, high voltage transmission line construction, and especially in the perfection of switching and control apparatus, which make the huge reservoirs of power safe and usable.

The railway companies are much interested in this development, and in every sense of the word they wish to encourage it; it means cheap power for commercial purposes and the expansion of industry, which brings business. But it should be recognized that it will generally be detrimental from the power company's standpoint to allow railway loads to be taken at random points on their distributing systems. Such loads, both as regards the power company and the railway itself, should be treated as block supply at a few points and as far as possible delivered on lines directly connected to the main load centers or power plants.

Discussing now the conditions under which a railway company can make use of this power supply, it is obvious that the energy furnished must be suitable, reliable and cheap. As to reliability, it may be conceded that a centralized commercial power system meets this essential. So does an up-to-date railway power plant; it has been found dependable. I should be willing to bank upon either source of supply in adopting an electrification project. It has often been pointed out that purchased power is produced by specialists while railway power is not. This in a sense is true, but in another it is not; railways have always specialized in power; every locomotive is a power plant; they surely can care for the central plant of an electrification. The question is, will they? Unfortunately (or fortunately, as you choose to look at it), it is difficult to bring this about. The power house is an incident only in a complicated chain of factors making up the production of transportation, and the importance of keeping a power plant up to maximum efficiency and of taking advantage of progress in the art, not always fully understood by the higher officers who are responsible for expenditures. It is difficult, therefore, to get prompt authorization for large expenditures for modernization. With commercial companies, on the other hand, the power house and its successful operation are major considerations; the man in charge is a manager of the business, not a minor officer reporting through the various departments up to the official who controls policy in making large expenditures.

The next point which should be referred to is that the purchase of power will relieve the railway company from a considerable capital expenditure for a plant of its own, and the periodic and heavy expenditures for modernization. These are undoubtedly advantages and constitute an inducement for a railway company to buy its electrical energy—but these advantages are not reflected in power costs, as interest and depreciation charges accrue in either case and are elements in cost.

The Final Cost of Power to the Railway

The third and most important consideration, however, is the final cost of energy delivered at the railway distribution system. If the electrification is a minor one, requiring a limited amount of energy, a small plant only is needed and this cannot compete in production cost with a large one. But in the case of a large and growing electrification, the fact should be recognized that a railway company can design and build a large modern plant of its own at a reasonable cost and can secure from it cheap and reliable power. Therefore, for an outside company to compete as to energy cost it is necessary that it should have in mind the following:

1. The effects of high capital costs of the power house, transmission and real estate. In some cases, apparently excessive first cost has been due to the proximity of the plant to a large center of population; in others to an ultra-refinement of plans, aimed to produce energy at the lowest possible cost. A railway company can generally place its own plant in a cheap locality, centrally to its electrification and adjoining its right-of-way,

and thus, by careful planning, reduce first cost of plant and transmission, and make competition with it difficult.

2. The relatively high interest charges paid by the power company for capital. This, together with high taxes paid and sometimes franchise taxes in addition, produce a high fixed charge, which becomes a part of the "demand" rate of the contract.

3. High staff and general office charges. A railway has a very low management overhead chargeable to power cost.

4. The small benefit which a company is apparently willing to accord the railway for the "diversity factor" produced in connection with its own load. In some kinds of railway traffic, such as suburban, there is probably little diversity obtainable by the power company taking over such a load, as suburban traffic peaks coincide roughly with the lighting peaks of a power company. If, however, through passenger and the various kinds of freight services are included, there may be a considerable diversity secured and which would help out a commercial power system. A railway may reasonably expect that its own load shall be considered a unit, both as to the requirements for its different services and as to location.

5. The amount of spare generating capacity allocated to the railway load. In a plant of its own a railway company would, of course, provide for reserve capacity, but would exercise its judgment as to how far it would depend upon this in extraordinary emergencies, and how it would arrange its traffic in case of a shortage in emergencies. Commercial power companies generally go beyond this in figuring reserves, and I am not criticizing their policy; we expect them to safeguard our normal demands—perhaps more fully than we do ourselves; but the railways should not be penalized for the extraordinary emergency conditions heretofore mentioned by the establishment of new and higher "demand" charge. In other words, the railway should be able to obtain extra emergency power at "energy" cost, if and as the power company may have the capacity to supply it. It is not intended to ask that spare capacity be set aside for these occasional extra demands; in fact, many times the emergencies would come on the power company's off-peak times; but if the company has unused capacity during the emergency it should give it to us; the contract should not be punitive. If this policy be followed it would tend to reduce a high demand rate of the power company, and thus make purchased power more attractive to the railway.

Contractual Provisions

The manner in which these various essential provisions for the production of low cost power to the railways have been incorporated in an important existing contract is summarized in the following:

1. The charges or rates are based on the actual cost to the power company of producing power in its generating stations and transmitting it to the railway supply points. This "actual cost" includes fixed charges, general expenses and all other items properly entering into the total cost but it is based on production in large modern plants, not counting old and small plants, and is also based on certain allocated portions only of its transmission network.

2. In order that the railway may be protected against any unforeseen high cost of energy, such as a radical change in company set-up, the power company guarantees that the demand charge and the energy charge shall not exceed certain fixed values. Such guarantees are based on specific costs of coal and labor. Maximum rates for fixed charges are also stipulated.

3. The demand is determined monthly and is based on three maximum normal clock hours per month, with the stipulation that the demand in any succeeding month shall not be less than 75 per cent of any previous monthly demand.

4. Abnormal demands resulting from accidents, derangement of power supply, abnormally heavy traffic or unusually severe winter weather conditions are disregarded in determining the monthly demand.

5. If more favorable terms are subsequently made to other consumers under similar conditions of supply, the railway shall be entitled to the lower rates.

6. Power may be supplied at several points but the demand is determined by combining the readings at all points; in other words, the railway gets the benefit of its own diversity factor; proper allowance for the company diversity is also reflected in the determination of the demand charge.

The remarks made in connection with power supply are offered only in the spirit of helpfulness to make possible the use by railways of power drawn from the great commercial supply systems, which are becoming an important national factor in aid of industry. It was necessary, in doing this, to emphasize the fact that cheap power is essential to the establishment and growth of electrified railways; that the direct savings in such form of operation are at the best small and the first cost very high. Therefore, both the railways and the power companies should co-operate in establishing contract conditions which will eliminate as far as possible all unnecessary handicaps to cheap power in order that the use of purchased energy for electrification may extend and benefit the community generally.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading amounted to 971,920 cars during the week ended June 1, which included the Memorial Day holiday. The total as compared with loading in the corresponding week of last year represents an increase of 37,247 cars and as compared with the total in the corresponding week of 1927, an increase of 60,410 cars. All commodities excepting livestock show an increase as compared with the totals in the past two years. Loading in the Southern and Southwestern districts was slightly smaller than in the corresponding week of last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday June 1, 1929.

Districts	1929	1928	1927
Eastern	221,415	214,652	204,568
Allegheny	204,155	189,665	187,216
Pocahontas	55,793	49,088	55,878
Southern	137,499	138,705	135,918
Northwestern	154,661	148,376	145,484
Central Western	128,846	124,597	117,674
Southwestern	69,551	69,590	64,772
Total West. Dists.	353,058	342,563	327,930
Total All Roads	971,920	934,673	911,510
Commodities			
Grain and Grain Products	37,235	33,975	36,415
Live Stock	22,468	24,889	28,694
Coal	147,934	138,983	139,404
Coke	12,154	9,854	10,413
Forest Products	66,817	64,419	64,512
Ore	73,521	60,900	58,835
Mdse. L.C.L.	231,338	230,742	226,979
Miscellaneous	380,453	370,911	346,258
June 1	971,920	934,673	911,510
May 25	1,061,416	1,021,403	1,026,789
May 17	1,046,179	1,003,288	1,027,498
May 11	1,047,922	1,002,411	1,029,424
May 4	1,050,192	978,053	1,024,761
Cumulative totals, 22 weeks	21,308,287	20,472,331	21,436,696

The freight car surplus for the last week in May averaged 222,626 cars, including 64,156 coal cars, 109,924 box cars, 27,005 stock cars and 14,727 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended June 1, totalled 73,583 cars, an increase over the previous week of 9,266 cars and an increase over the same week last year of 4,455 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
June 1, 1929	73,583	38,774
May 25, 1929	64,317	41,658
May 18, 1929	67,880	42,610
June 2, 1928	69,128	37,221
Cumulative Totals for Canada		
June 1, 1929	1,407,916	946,612
June 2, 1928	1,392,377	876,127
June 4, 1927	1,326,584	851,087

The Track Side of the New Monongahela Station at Brownsville

Monongahela Builds Well-Planned Office-Station Building

New structure at Brownsville, Pa., is unusually adequate and attractive, considering cramped area and size of city

DURING the last year, Brownsville, Pa., a city of 15,000 population, which has been made industrially important by its railway facilities and the development of its surrounding coal fields, has been provided with a new passenger station, which is in many respects unusual for a city of that size. This station, which has four office floors above the main station floor, is of special interest because of its compactness, and because of the unusual attention which has been given to its interior to make it attractive, and easily maintained.

For a number of years, owing to the narrow and closely confined right-of-way of the Monongahela railway along the Monongahela river, the city of Brownsville has been served by inadequate passenger station facilities, housed in two old remodeled brick buildings. With the growing importance of the city, however, and the increased prosperity of the road, the railroad facilities have been completely rebuilt during the last three years, and in addition to a new passenger station, which cost in the neighborhood of $400,000, include a new express building, a new freight house, and a new locomotive erecting shop.

Monongahela Has Had Rapid Growth

The Monongahela railway was organized on January 3, 1901, with about 36 miles of lines, in the joint interest of the Pennsylvania and the Pittsburgh & Lake Erie whose purpose was to construct extensions from their termini at Brownsville, south into the bituminous coal fields, as far as the West Virginia state line. Today, the Monongahela, which is owned jointly by the Pennsylvania, the Pittsburgh & Lake Erie and the Baltimore & Ohio, but operated as a separate property owns or operates under lease 171 miles of lines with 291 miles of tracks, and extends from Brownsville, as far south as Fairmont, W. Va.

In this territory, which has been described by geologists as a veritable storehouse of coal wealth, the Monongahela has done much to build up an otherwise backward section of the country. Twenty-five years ago only 25 trains daily were required to handle both the freight and passenger traffic on this road while today 55 passenger trains operate in and out of the Brownsville station each day, and as many as 15,000 tickets have been sold at this point during a month. In addition, the freight tonnage handled by the Monongahela, which consists primarily of coal and coke, and all of which passes through Brownsville, amounts to over 2,360,000 tons each month, or about four times as much as it was shortly after the road was constructed. In addition to this through tonnage, approximately 200,000 tons of freight is handled in and out of the Brownsville freight station each 30-day period.

Located in Main Business District

The new station, which serves as a union station for trains of the Pittsburgh & Lake Erie and the Pennsylvania as well as of the Monongahela, is located in the business section of the city on the site of the old station buildings, and is necessarily, more or less cramped in its setting by the close proximity of streets and buildings on the one hand, and by the river on the other.

The station, which fronts on the main business street of the city, is a five-story reinforced concrete structure, faced on all four sides with a polished granite base course to a height of six feet, Bedford limestone to the second story windows, and Watsontown red-colored brick up to a limestone cornice around the roof. In addition to the five main floors, the building has a base-

ment throughout, and the foundations were so designed and constructed that two additional floors can be added at a later date with a minimum of expense.

In the general arrangement of the building, which has a frontage of 140 ft. and covers an area of approximately 7,900 sq. ft., the first floor is at practically the street and track level, and is given over primarily to passenger facilities. The four upper floors are suitably finished and divided into office facilities for about 150 officers and employees of the Monongahela.

Waiting Room is Main Passenger Facility

The main entrance to the station is of the Roman arch type in Bedford limestone, and the entranceway itself is provided with five doors, above which are panels of glazed sash. On each side of the main entrance, the front of the building is occupied by stores.

Immediately inside the entrance is a public vestibule, about 28 ft. long by 17 ft. wide, on the left of which a staircase and two elevator shafts extend to the upper floors of the building. At the present time, only one of the elevator shafts is in service, the other having been provided for the operation of a second elevator at some later date.

Immediately beyond the lobby, but separated from it by four plate glass doors, is the main waiting room, which lies lengthwise of the station in a general north and south direction. This room, which is also used as a passenger and train concourse, is 76 ft. long by 26 ft wide, and is completely surrounded by auxiliary passenger station facilities, laid out to afford the maximum convenience to passengers. The ticket office, which has three service windows, is located directly opposite the entrance, adjacent to the west wall of the room. To the left of the ticket office is a small extension of the waiting room which leads to the women's rest room and toilet facilities.

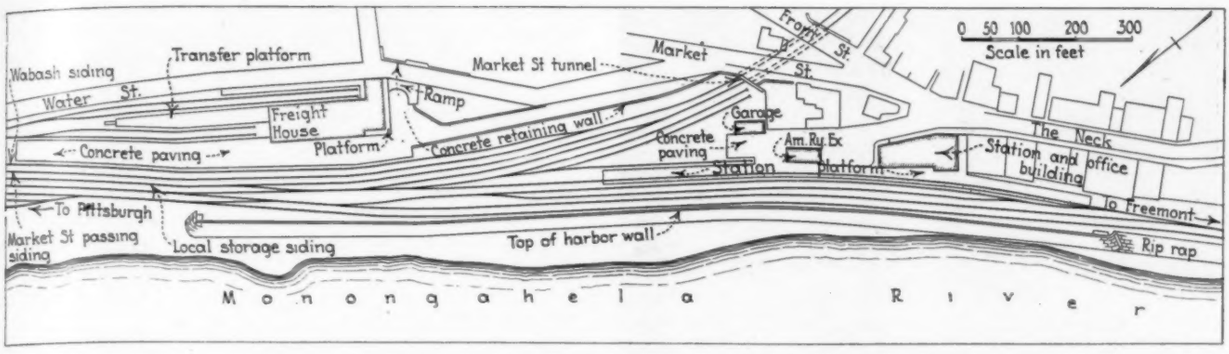
The facilities along the street side of the waiting room, in addition to show windows and entrances to the shops along the front of the building, include a Union News stand, a men's smoking room and men's toilet facilities. Directly opposite these latter facilities, in the northwest corner of the station building, is a baggage and parcel room, with service counters fronting on a corridor extending from the north end of the waiting room. The corridor referred to extends to an entrance at the north end of the building, which leads out to a walk, and to a broad paved area for the use of private automobiles and taxicabs arriving at or leaving the station. This north-end entrance to the station is covered by an ornamental marquise to give additional protection to passengers.

Exit from the waiting room to the station tracks is by means of two sets of doorways, one on each side of the ticket office. These exits lead over short low ramps to the long track platform which extends for about 860 ft. along the rear of the station. This platform, which is 25 ft. wide, except where it broadens out directly behind the station and in the vicinity of the express building north of the station, is of concrete construction and is covered by an overhead canopy, which is extended beyond both ends of the station in the form of a butterfly-type platform shed.

Interior Decoration Unusual For Small Station

While great care was exercised in the arrangement of the facilities provided, the outstanding feature of the station is its interior finish and decoration, which was not designed solely from the standpoint of permanency, but also to lend a pleasing and harmonious atmosphere to the station facilities. Within the main entrance lobby, which has a high arched ceiling, the walls are of Tennessee golden travernelle marble carried up to the plastered freize at the ceiling line. The stairway is likewise faced with marble, and bronze was used for the stair balustrade and the elevator doors. The walls of the waiting room are of mosaic wall tile in old ivory tint, which is carried up about 14 ft. to the plastered cornice at the ceiling level. This tile work is set out by the use of golden travernelle marble on all interior pilasters, and on the four large columns which are located through the center of the waiting room. The trim within the waiting room is for the most part of birch, as are also the settees, and with these few exceptions, and that of wooden sash, the entire building is of fireproof construction. Practically all of the floors in the public areas of the station are of terrazzo tile with dark borders around the wall lines. In the case of the waiting room, the flooring is carried up about six inches along the side walls and around the columns to improve sanitary con-

The New Station-Office Building as It Appears When Pictured by Itself



Layout of Buildings and Tracks in the Vicinity of the New Station

ditions and to make it possible to clean the floor more readily.

The ticket office room is entirely inclosed and has a wooden counter with a tile skirt beneath and a dark finished birch inclosure above. The three ticket windows are protected by bronze grillages, and a bronze baggage rack extends across the front of the counter for the convenience of passengers purchasing tickets.

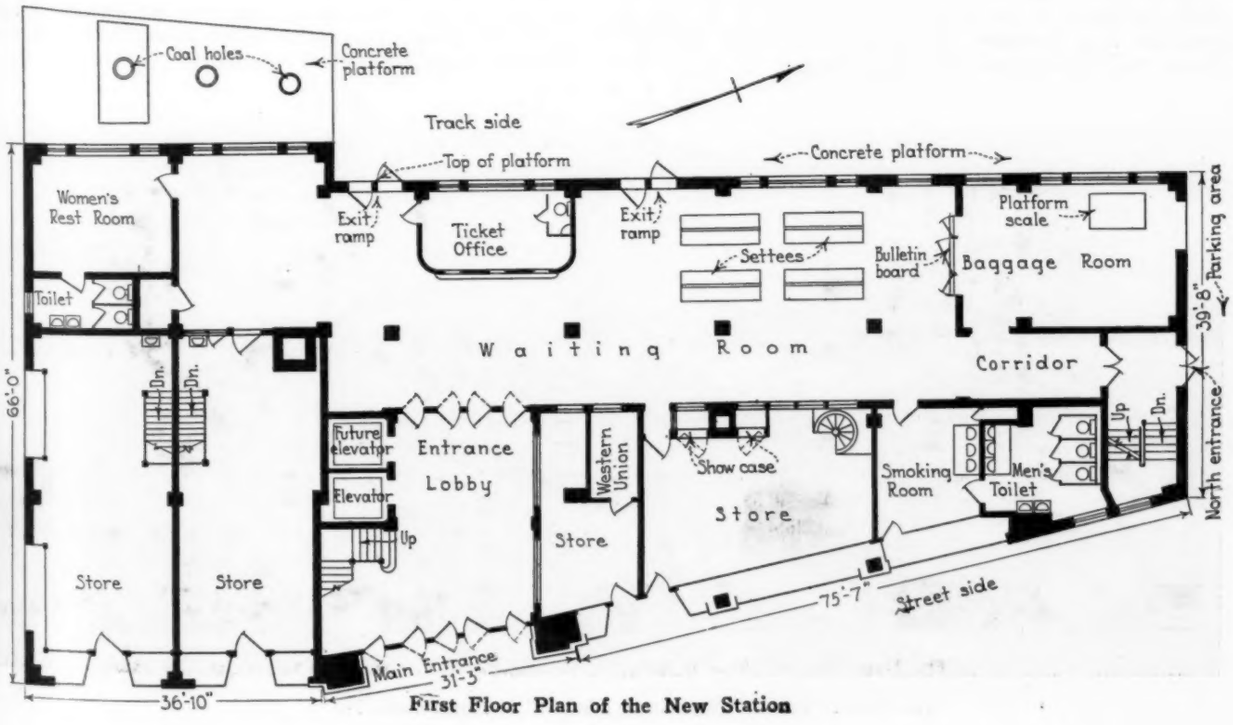
Both the men's and women's toilet rooms are finished with gray marble toilet partitions and wainscotings to a height of 5½ ft., and with gypsum plaster walls and ceilings above the wainscoting. The plumbing system is modern in every respect, and all fixtures are of standard make vitreous china with chromium nickel-brass fittings. Hot water for these rooms, as well as for other parts of the building, is furnished from a 250-gal. copper storage tank, in a system which provides for heating the water by either steam from the main heating plant boilers, or by a large gas heater.

Building Provides a Large Office Space

On the four office floors, which are reached from either the main entrance lobby or from stairs adjacent to the north entrance, approximately 32,000 sq. ft. of office space is provided, divided into suitable areas by hollow tile partitions. All of these partitions have a plaster finish and wood trim, and all of the concrete floors on these floors are finished with Insulite flooring, applied in six coats.

In the general assignment of the office floors, the second floor is used primarily by the operating department, the third floor primarily by the mechanical department, the fourth floor by the maintenance of way and purchasing departments, and the fifth floor by the engineering department. On this latter floor, one end of the building is laid out as a drafting room. The basement of the building is divided primarily into storage areas and a boiler room. In all of the office floors, all telephone and buzzer lines are carried in conduit just under the floor, with two lines tapping each office. This permits telephones and buzzers to be installed or relocated readily, and precludes the necessity for carrying exposed wires across the floor.

Heating of the building is entirely by the direct steam system, the steam being furnished by two boilers in the boiler room, with a combined capacity of 7,500 sq. ft. of radiation. The system is equipped with two large duplex vacuum pumps, which make it possible to circulate steam to the top floor of the building with less than one pound pressure in the boilers. All radiator



First Floor Plan of the New Station

An Interior View of the Concourse and Waiting Room

piping throughout the building is concealed, and on the office floors is carried to the main risers behind movable metal bases, finished to match the flooring.

Lighting throughout the building is by electricity purchased from a local power company, but as protection against a power failure the building is equipped with an emergency lighting system. Lighting fixtures were carefully selected for each particular part of the building, careful attention being given to the ornamental effect and the amount of illumination desired. Another special feature installed throughout the building is the drinking water system, in which cool water is supplied throughout the year by circulating through an electric refrigerator housed in the basement.

In spite of the fact that the station is of fireproof construction throughout, the entire building is protected against fire by an Edwards' fire alarm system, and as an added precaution, each floor is equipped with two three-inch fire hydrants and 100 ft. of hose.

Little work was necessary in connection with the track facilities at the new station as all of the small available area between the station platform and the harbor wall along the river was already occupied by five tracks. The two more westerly tracks are the main through tracks of the road, and the other three tracks, which extend only throughout the station area, are primarily station tracks.

The completion of the station at Brownsville is the last event in a series of improvements which have been made at this point since 1924. The two largest and most important of the other improvements were the construction of a large erecting shop in 1925 in connection with the engine terminal and machine shop facilities at Brownsville, and the construction of a modern freight station about 1,000 ft. north of the passenger station.

The new erecting shop, which was constructed adjoining the large machine shop at the terminal, is a steel-frame, brick structure, equipped with six stalls for locomotives undergoing classified or heavy repairs. This shop is fitted with a 65-ft. 120-ton electric crane, and with all of the modern tools and machinery necessary for carrying out heavy locomotive repairs.

In 1928, the new freight handling facilities at Brownsville were completed. These facilities, which were designed for handling both inbound and outbound freight, as well as for transfer freight, consist essentially of a large one-story freight house and a large transfer platform. The freight house, which is constructed with brick side walls and a frame roof on structural steel trusses, provides an office area 92 ft. long by 31 ft. wide at one end, and a freight handling floor, approximately 183 ft. long by 65 ft. wide at the other end. The transfer platform extends about 278 ft. from the north end of the station, and lies between two stub tracks on the west or river side, and the two main house tracks on the east side. The platform varies in width from 34 ft. at the south end to 13 ft. at the north end and is entirely covered with a flat-top shed.

All of the work in connection with the new passenger station at Brownsville, and also, in connection with the new erecting shop and freight handling facilities, was carried out under the direction of George Burnette, chief engineer of the Monongahela. The actual design and construction of all of these facilities, was done by the H. K. Ferguson Company, Cleveland, Ohio, under the direct supervision of Bronson R. Magee, contracting engineer of that company.

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The Pennsylvania's "Manhattan Limited" at Englewood, Ill.

Oil-Electric Rail Car Built for the Pennsylvania by the Westinghouse Electric & Manufacturing Company

Oil-Electric Rail Cars for the Pennsylvania

Develop maximum starting tractive force of 18,000 lb.— Seating capacity for 72 persons

By David C. Hershberger

General Engineer, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

THE Pennsylvania has recently received two oil-electric rail cars from the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. The car bodies were built and assembled with Commonwealth trucks by the Pullman Car & Manufacturing Corporation, Chicago, and shipped to East Pittsburgh where the oil engines and electrical equipment were installed and factory tests made on the completed cars. The Diesel engines were built at the South Philadelphia, Pa., works of the Westinghouse Electric & Manufacturing Company and the electrical equipment at the East Pittsburgh works, while the air brake equipment was supplied by the Westinghouse Air Brake Company, Wilmerding, Pa.

These are the first cars of a co-ordinated design built for the installation of a modern car-type Diesel-driven power plant, to be placed in service in the United States.

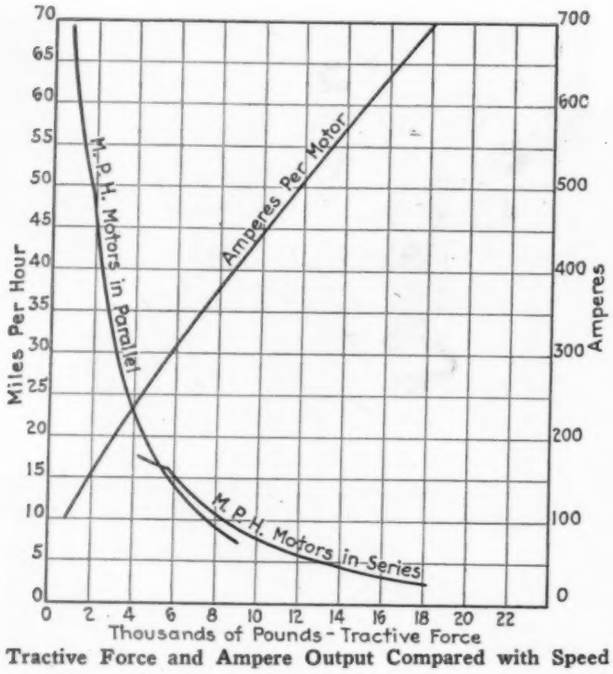
Interior Arrangement and Furnishing

These cars are of steel construction having semi-turtle back roofs through which adjustable ventilators project. The interior of each car is divided into four compartments and an enclosed vestibule. The vestibule is located at the rear end of the car, and is equipped with modern trap doors. On the right side is located an operator's station for running backward. The control equipment is arranged to be locked behind a door when not in use. The master and auxiliary controller, air brake valve, temperature indicator, electric heater and gages comprise the equipment at this operating station.

All the woodwork, such as the doors, sash, moulding and window frames of the passenger and smoking compartments, is of mahogany finish, presenting a pleasing appearance. The ceiling is finished in white. The passenger compartment has a seating capacity of 52 with the seats arranged for two and three seating. The seats are reversible, except those next to the bulkhead, which are the stationary type. They are finished in Fabrikoid Spanish finish and provided with statuary bronze grab handles.

The smoking compartment has a seating capacity of 20, making a total seating capacity of 72 for the car.

The baggage compartment is relatively small and has



Tractive Force and Ampere Output Compared with Speed

a capacity for 5,000 lb. of baggage, and in addition, provides space for the car heater. A hot-water heating system is installed. The heater is used to heat all compartments, including the engine room and jacket-water cooling system when the cars are not in service.

A 32-volt lighting system supplies the lighting for all compartments by the use of 15-watt tungsten filament lamps with glass shades.

The side doors for the baggage compartment are carried on rollers at the top and slide behind corrugated sheet-steel pockets. The engine room is provided with an escape door located back of the position occupied by the engineman.

The engine compartment is provided with a double end door of sufficient width to permit the installation of the complete power plant.

The sand boxes are carried at the sides of the car, in the engine-room compartment and are arranged to be filled through double folding doors at the side of the car. The engine room is ventilated through louvres at the sides of the car.

The passenger compartments are equipped with standard Pennsylvania windows. In the engineman's compartment, there is a sliding drop window at the side of the operator, and in the motorman's cab, at the rear of the car, there is a sliding window in the same position. A clear vision window is located in front of the engineman.

Commonwealth cast-steel motor trucks, with 5½-in. by 10-in. journals and 7-in. motor bearings, are employed. The wheels are 36-in. in diameter and are of rolled steel. The trailer truck is also a Commonwealth truck with 5-in. by 9-in. journals and 36-in. rolled-steel wheels. Both trucks are equipped with Hyatt roller bearings.

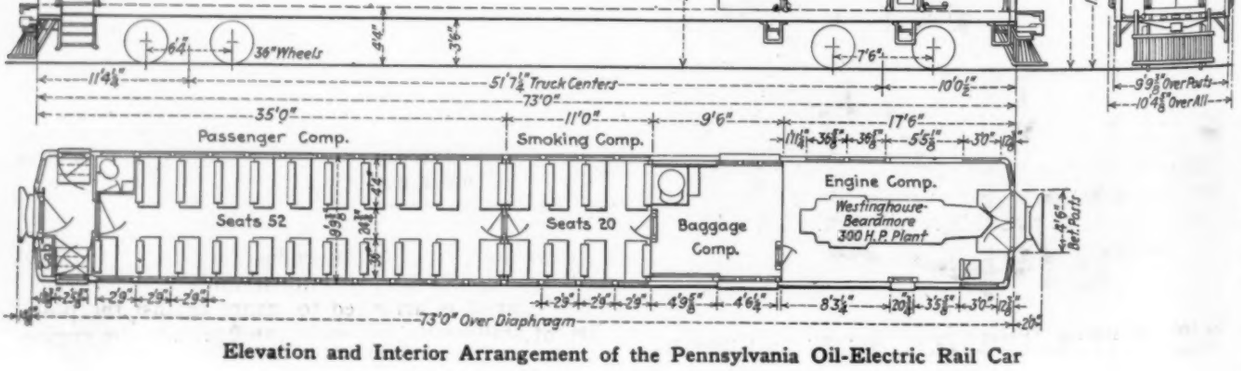
The Oil Engines

These cars are the first to be equipped with the Westinghouse oil engine. The engine is of improved design in which is incorporated the results of experience gained during the past four years on the Canadian National with a total aggregate of over 2,000,000 motor-car miles of service.

The fuel pump has six cylinders, one for each main cylinder, which permits balancing pressures in the individual cylinders, and provides greater accessibility and lower maintenance cost of the pump itself. Any cylinder of the high-pressure pump can be removed and replaced without disturbing adjacent cylinders. The fuel valve is arranged to be remotely closed by the use of an electro-pneumatic trip. It is also tripped and the fuel shut off by engine over-speed.

A Westinghouse oil-pressure type engine governor has been employed instead of the fly-ball type, which makes for greater reliability. This general type of governor has been used extensively in governing the speed of large steam turbines, so that its inclusion in the design of this engine is backed up by a large field of experience in governor operation. A large crank shaft is employed which, together with careful balancing, has produced an engine that is practically free from vibration. The engine is provided with individual air intakes carried up to the ceiling of the car, which assist materially in reducing the pumping noise. The exhausts are arranged so that the three adjacent cylinders at each end of the engine exhaust into a vertical pipe and the two pipes are carried to a new design of Westinghouse muffler located on the roof of the car. The use of a muffler on oil-electric cars is a new departure and results in quiet operation.

The engine rates 300 hp. at 800 r.p.m. It is of the solid-injection type employing the four-stroke cycle and has six cylinders, 8¼ in. diameter, 12-in. stroke.



Elevation and Interior Arrangement of the Pennsylvania Oil-Electric Rail Car

The design was worked out with the particular object of making it most suitable for transportation work. The engine is a compact, well-proportioned and rugged power unit, having the advantageous features of light weight and economy, as well as smooth operation. Economy is obtained by the use of high speed and high compression, ensuring complete combustion. Smooth operation results from a careful balancing of parts and the use of a large crankshaft. Accessibility for maintenance is one of its most important features. The replacement of an atomizer requires only a few minutes. The replacement of a cylinder liner requires only a few hours.

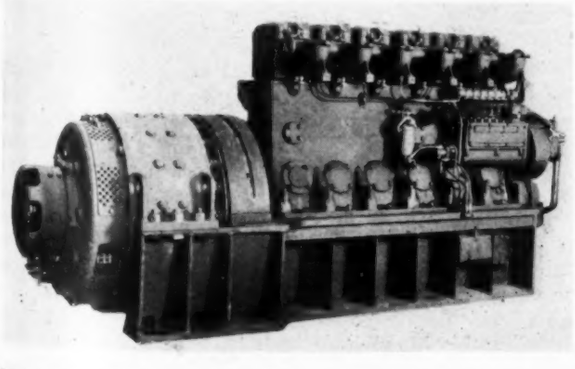
All parts such as cylinder heads, covers, liners, pistons and connecting rods can be easily lifted by one person. The fuel-oil, lubricating-oil and water pumps are integral with the engine and are totally enclosed, as are all valves and rotating parts, making the engine conform to safety ideals.

Main and Auxiliary Generators

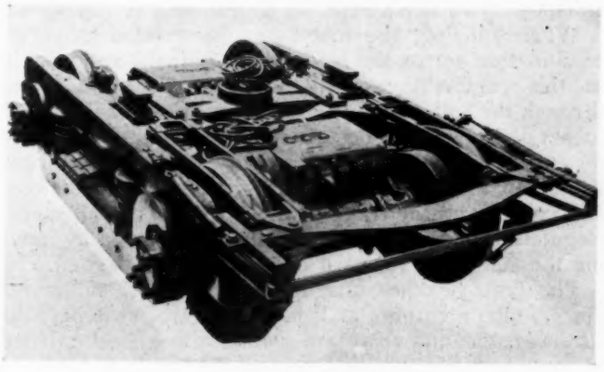
The main generators are 750-volt, 210-kw., variable-voltage, direct-current machines receiving field excitation from a 64-volt direct-current auxiliary generator. The armature of the auxiliary generator is pressed on an extension of the generator shaft while the stator is bolted to the main-generator bracket and is easily removable. The commutator end of the main-generator armature is carried on a large ball bearing while the engine end of the armature is bolted to the flywheel and carried by a double bearing in the engine. The main generator not only supplies power to the traction motors but is used as a starting motor for starting the oil engine. It receives its power from the 64-volt, 204-ampere-hour storage battery, when used as a starting motor. It serves also to charge the battery and supply power for operating the compressors and auxiliaries at an engine idling speed of 350 r.p.m.

Table Showing the Principal Weights and Dimensions of the Pennsylvania Oil-Electric Rail Cars

Length over body	73 ft.
Length over couplers	76 ft. 2 in.
Length, passenger compartment	35 ft.
Length, smoking compartment	11 ft. 10 in.
Length, baggage compartment	9 ft. 6 in.
Length, engine room	17 ft. 6 in.
Height overall	13 ft. 11⅞ in.
Width overall	10 ft. 4⅝ in.
Diameter of wheels	36 in.
Truck wheel base	7 ft. 6 in.
Seating, passenger compartment	52
Seating, smoking compartment	20
Total seating capacity	72
Baggage capacity	5,000 lb.
Weight on front truck	85,900 lb.
Weight on rear truck	46,900 lb.
Total weight of car in working order	132,800 lb.



The 600-volt 210-kw. Direct-Current Generator is Connected Directly to the 300-hp. Oil Engine Rated at 800 r.p.m.



The Motor Truck

The auxiliary generator supplies power for the excitation of the field of the main generator, and for compressor operation and battery charging when the main generator is running at higher than idling speed.

Both the main and auxiliary generators are liberally rated and designed to be so controlled by the control equipment as to avoid overloading or stalling the oil engine.

The Traction Motors

The motor equipment consists of two type 569-C-4 traction motors, with a gear ratio of 20 to 59. The hourly rating is 350 amperes at 600 volts and the continuous rating, self-ventilated, is 210 amperes at 450 volts. The motor is designed to have a low internal resistance and provide operation at maximum efficiency. Sleeve type bearings arranged for oil and waste lubrication are embodied in the design of this motor.

Air Brake Equipment

Westinghouse type AML 18-in. by 12-in. brake equipment, using M-31-C brake valves located at each engineman's operating station, is installed. This air brake includes the deadman's feature in the brake valve, employing a parallel foot-treadle-handle control, so that in case the engineman wishes to remove his hand from the brake handle, the foot treadle can be depressed thus avoiding bringing the car to a stop unnecessarily. Electro-pneumatic sander valves are used.

The compressor is a Westinghouse DH-25 motor-driven compressor arranged to operate from the 64-volt battery circuit, which receive its power from either the main or auxiliary generators, depending upon the speed at which the engine is running. The switching of compressor power supply is automatic thus assuring full air pressure at all times, and providing maximum safety in train operation.

Control Equipment

The control is of the Westinghouse electro-pneumatic type for double-end operation and is arranged to give series and parallel grouping of the traction motors across the generator terminals.

While the natural combined characteristics of the generators and traction motors favor the characteristics of the oil engine, a governing device is used to complete the function of proper loading of the oil engine by the electrical equipment. The main generator field current is accurately controlled to produce this result, by varying the voltage at the generator terminals.

The control is arranged to insure against the possibility of stalling the oil engine and permits the engineman to notch out to the last position in order to obtain

full power when accelerating or running at full speed.

When starting, the motors are connected in series combination across the generator terminals, and remain in this combination until the controller is notched through the full engine speed range when a change-over to parallel operation occurs on the last notch with the oil engine operating at full speed. Retaining the controller on the last notch permits the engine to deliver full power, and the train is accelerated to its full speed. Regulation of the speed in parallel is obtained by moving the controller forward or backward as desired.

The unit switches, magnetic contractors, motor reverser, motor cutouts and battery-control switches, resistors, fuses, and relay are mounted in a steel cabinet at the side of the cab, and next to the bulkhead between the engine room and the baggage compartment.

The master controllers each have a main operating lever and reverse lever with the customary mechanical inter-locking between the reverse drum and the power drum to prevent unauthorized operation of the car when the reverse lever is removed or operation of the reverser when power is applied to the traction motors.

The controller for starting the engine is mounted at the opposite side of the car from the engineman's station, but convenient to the decompression and fuel-trip levers on the front end of the engine, and is operated during the starting operation. This controller serves to connect the main generator to the storage battery and governs the acceleration of the engine to firing speed. The reverse lever is removed from the master controller and is inserted in this controller in the starting operation, thus automatically protecting against improper manipulation of the equipment.

An electro-pneumatic operating head is utilized to graduate the speed of the oil engine from idling to full speed by varying the governor setting. Its design is such as to make it readily applicable to multiple operation of similar cars from one operating station with the application of proper control-line equipment. Similarly a number of oil engines may be operated from the same master controller with this type of operating head.

The meter equipment consists of two air-brake gages and a battery ammeter, one set of each at each operator's station. Two indicator lamps mounted on a panel above the operator's station indicate the temperature of the cooling water for the oil engine. A green light indicates the most desirable temperature and a red light indicates excessive temperature. A separate or auxiliary controller serves to control the various lighting circuits, apply sand or stop the oil engine.

Sanding of the rail in the direction of the travel of the car is obtained by the use of one sander switch lever. The electrical connections from this switch to the electro-pneumatic sander valves are carried through the reverse drum of the master controller so that the selection of the proper sanders is automatic.

Should the pressure of the lubricating oil become dangerously low, the control is arranged to trip the fuel lever thus shutting the engine down.

Water and Oil Cooling Systems

The cooling of the engine-jacket water is accomplished by the use of a water pump forcing the water up through the engine and through a thermostatically controlled by-pass valve to the radiators on the top of the car, from which it returns by gravity to the circulating system and water tank. The radiators are located vertically at the front of the car, and are arranged for cooling by the passing of the head wind through them. The radiator is provided with shutters operated from the engineman's compartment and may be closed partially or fully, as desired, in cold weather. The position of the shutters is indicated to the engineman by a pointer in the cab. The temperature of the engine cooling water is further controlled or maintained at a proper value by the use of the thermostatically controlled by-pass valve, which passes the water by the radiator when the temperature is below a given value and then passes it through the radiator when the temperature is above a predetermined value. This permits the engine to work at the most efficient temperature. The water tank is located over the generator and maintains a water head above the engine. Heating coils underneath the tank are provided to keep the engine compartment and engine warm in cold weather, the heat being supplied from the car-heating system.

The lubricating oil is cooled by being forced through the radiators placed horizontally on the roof of the car by a gear type scavenging pump after which it flows back to the lubricating oil tank.

Miscellaneous Equipment

The fuel-oil tank is of rectangular shape placed along the side of the car and has a capacity of 200 gal. A KS telegage indicates the amount of fuel oil in the tank. The lubricating oil tank is also of rectangular construction. The lubricating oil strainer is mounted on top of this tank. Lubricating oil is added to the system at the tank. The car piping is arranged for refueling on top of the car at either side or underneath the car body at either side.

The battery is divided in two parts, one half located under each side of the car in a battery box. Charging receptacles are provided for emergency charging. A Golden Glow headlight and a Westinghouse pneuphonic duplex horn is mounted at each end of the car.

The maximum permissible speed of the car is 70 m.p.h. A maximum starting tractive force of 18,000 lb. is obtainable by the application of engine and electrical equipment of liberal design, and the use of a 20:59 gear ratio on the traction motors. This conforms to a nominal adhesion of 21 per cent for the wheels under the power-plant end of the car.

Coach Weather Strips

THE D. W. Bosley Company, 1911 Carroll avenue, Chicago has placed on the market two new designs of weather strips that can be used on railway car windows or doors. The first of these is the Bomeco Type B, which is made of spring bronze. It has hemmed edges to prevent it from "singing." The width is 1¼ in.

The other design is designated as the double-contact metal-and-felt-type weather strip, which has replaced the old metal-and-felt-type strip. It has been determined by experience that metal against metal or metal against wood in a weather strip does not make a perfect contact since there is a tendency for the metal to bulge between the nails. Thus, the metal-back weather strip too frequently permitted the circulation of air underneath the strip, defeating the purpose for which the strip was used.

The new double-contact metal-and-felt railroad strip remedies this by giving a felt back to the strip, which makes a tight contact against the window sash or door.

The moth proof felt is held in a copper coated steel strip from which it is said no peeling takes place.

Superintendents Meet in Mexico City

Comprehensive reports, active discussion and large attendance make convention one of most successful in history of association

AS a recognition of the interest that Mexican railway operating officers have taken in its work in recent years and particularly of the more than one hundred members from those railways, the American Association of Railroad Superintendents held its thirty-sixth annual convention in Mexico City on June 4-7. The meeting was one of the most largely attended in the history of the organization, a total of 625 members and members of their families having gone from Canada and the United States in two special trains of 17 and 16 cars respectively, provided by the Missouri Pacific, the Texas & Pacific and the National Railways of Mexico. These trains left St. Louis on May 31 and travelled via San Antonia and Laredo, stopping for a short time at Monterey and Saltillo and returning via Tampico and Brownsville. All sessions were held in the National Palace, at the invitation of President Portes Gil of the Republic and were presided over by T. B. Wilson, president of the association and vice-president and general manager of the Southern Pacific Motor Transport Company, San Francisco, Cal.

The convention was particularly noteworthy by reason of the diligence with which the members adhered to the work of the association, sessions convening promptly at 9 A.M. and 1:30 P.M. for 3½ days. The discussion also was more active and to the point than in any recent year. The meeting was also noteworthy by reason of the international significance attached to it. The members were received officially by President Gil and his wife and by the governors of the various states through which the party passed. At a luncheon given by the Hon J. M. Puig Casauranc, governor of the federal district in which Mexico City is situated, on Thursday a small pine tree was presented to the Republic of Mexico on behalf of the association, which tree was taken from the spot where Mexico's good will aviation ambassador Capt. Emelia Carranza fell in a recent accident in the United States. Following the conclusion of the convention President Wilson headed a committee of members of the association who placed a wreath on his grave in Mexico City in behalf of the organization.

Opening Exercises

The convention was welcomed to Mexico by Hon. Ing. J. Sanchez Mejorada, Minister of Communications of the Republic, by representatives of the Mayor of the Federal District of which Mexico City is a part and of the Mexico City Chamber of Commerce and by J. J. Franco, general superintendent of transportation of the National Railways of Mexico. After responding to these addresses and emphasizing the significance of this meeting from an international standpoint, President Wilson referred to the work of the association during the past year in part as follows:

Our work is altruistic and constructive, gathered as we are for the intimate exchange of experiences and ideas, for the assistance of our contemporaries wherever possible, and above all, for promoting the efficiency and economy of this stupendous industrial machine, the railroads, upon which hinge the prosperity and progress of nations.

Problems of transportation are boundless and intricate. During the last nine years, improvements have been made in every feature of operation; freight traffic has increased 5 per cent and the speed of freight trains between terminals about 19 per cent. These improvements have been brought about by 16 per cent fewer train miles. Notwithstanding these improvements during the same period revenue derived per ton mile has declined more than 15 per cent. Had freight rates in 1927 been on the same basis as those in 1921, it would have cost the American public an additional eight million dollars for transportation.

You are well aware of the splendid improvement in accident reduction. Freight car shortages have practically disappeared, while safety, comfort and speed have been materially increased. These are all benefits that have accrued to our industrial and

The Hall of the Ambassadors in the National Palace was Filled at the Opening Session

social life, in which our Association has played no small part.

The scope of our activity has extended throughout this great transportation service, we have gleaned a knowledge of those problems and experiences that should prove of inestimable benefit. Not only are we promoting a greater appreciation and understanding of our chosen vocation, but we are developing, perhaps unconsciously, a finer appreciation of characteristics and temperaments; in short, establishing a bond of internation good will.

The success of any association or organization founded upon principles such as ours, depends upon a strong supporting membership. Since the last meeting we have concentrated vigorously upon a membership campaign, and up to the time of this Convention we have welcomed 272 new members into the association. Subtracting the loss through delinquencies, resignations and deaths, the present net membership is 2,152, the largest in the Association's history, embracing as it does representatives of the vast majority of the railroad systems of Mexico, Canada and the United States.

Following this address, J. Rothschild, secretary-treasurer, reported 2,152 members at the close of the year, a net increase of 57 during the year. The various reports and papers were then presented and discussed in turn. They are abstracted below.

Report on Terminal Operation

Because of the intimate and direct relation which terminal operation, and particularly the manner of making up trains, bears to the prompt and efficient movement of traffic to destination, the Superintendents Association has long given careful consideration to the problems incident to the making up of trains. This year a committee, of which A. G. Peck, general agent, Missouri-Kansas-Texas, Kansas City, Mo., was chairman, presented a report on several phases of the problem of building up trains for through movement to destination, as a means of reducing switching and expediting delivery. In this report, the committee stated that the importance of classifying trains properly at initial terminals, in order to minimize switching at intermediate and final terminals, is increasingly apparent. It presented the following recommendations for facilitating this operation:

Provision of ample yards at initial terminals for full classification, except where land is not obtainable adjacent to interchange points or values are prohibitive.

Building tracks long enough to hold the longest train which the power provided, or likely to be provided, can handle.

Installation of air lines so that the train may be charged and made ready to move as soon as the engine is coupled.

That the Mechanical Division of the A. R. A. handle the matter of uniform car inspection, as we feel that no two car inspectors now agree on individual inspection.

Provision of ample time of initial terminals to permit outbound trains to be classified properly to the farthest destination that the train will serve, thus eliminating delays at intermediate terminals.

While it may take a little longer to prepare trains for forwarding, properly classified at initial terminals, such delays in the aggregate run out and much time is gained by reason of eliminating delays at intermediate points. Drags of empties should be run in solid trains so as not to interfere with the "red ball" trains at terminals.

We recommend blocking together freight for all junction terminals or points up to the farthest destination that the train will serve. Several lines do this for distances of 900 to 1,000 miles and one or two for as long as 1,900 miles. Even for distances under 1,000 miles, some lines are classifying into blocks at the initial terminal, the cars for each of the different railroads, freight houses, or city delivery tracks at destination, so that they are ready for delivery within an hour after reaching the final terminal.

Where tonnage has to break either up or down, this can be done most expeditiously by placing this annex tonnage just ahead of the caboose, so that in removing the caboose this tonnage can be taken off, or added to, with the least possible delay.

Where, as stated, additional land is not obtainable at initial terminals, consideration should be given to the advisability of providing suitable terminal facilities at the terminus of the first district or division point rather than at the initial terminal. The advantages to be derived from this arrangement are many, the most important being:

1. Reduction in terminal switching expense by reason of having road crews haul the traffic out of the initial terminal, instead of yard switching crews.
2. Lack of available land close to interchange points for suitable yard facilities, requiring yard crews to haul from interchange points to the terminal yard within the initial terminal.
3. Reduction in expense for land acquired and for taxes thereon, when located at the first terminal beyond the initial terminal, as compared with an excessive valuation of land in the present congested initial terminals in large cities.

Expediting Freight Movement Between Terminals

Where traffic is dense, and especially with many passenger trains, it is necessary to call trains for leaving so they will have the least interference from opposing or superior trains.

Having engines equipped with large tanks, say of 15,000 gal. or larger, has proved helpful. One or two lines carry, in addition to these large tanks, a water car, thus being able to go 125 to 130 miles without stopping for water. The proper location of sidings and tanks, telegraph offices, automatic signals, switches operated by remote control, and sidings is especially advantageous.

"Short" loads should be confined to pick-up and set-out trains. Where there are connections or cross line pick-ups to be made between terminals, an advance section may be run ahead of the blocked section trains to a terminal, where loading may be blocked and cut into proper trains without delay. The tonnage rating of engines on all but drag trains should be fixed so that maximum speed may be made at all times.

Expediting Trains Through Terminals

The pooling of engines so that they may run over two or three divisions without changing saves much time, and expedites the movement of the train. It has also been found that it saves much time at many outlying division terminals to pool the cabooses the same as engines. This makes it necessary only to change crews, thus expediting the movement of trains, besides effecting other economices.

Where icing facilities have to be provided, consideration should be given to having them located on a track of sufficient length to hold the entire train when pulling into the icing station.

Individual "wire consists" of trains, giving car numbers and destination, should be furnished to yardmasters and their forces.

Prompt Handling of Cars at Destination

The traffic and station forces should be schooled to educate receivers of freight to have shippers bill cars and show on the bills of lading and waybills the track number and road on which they are located, or other descriptive destinations. Waybills should accompany the cars in every instance. In large terminals, where industry cars are handled entirely on side carding, this carding should be thorough enough so that anyone inspecting a car can tell the exact spot to which it should go without having to refer to some other record.

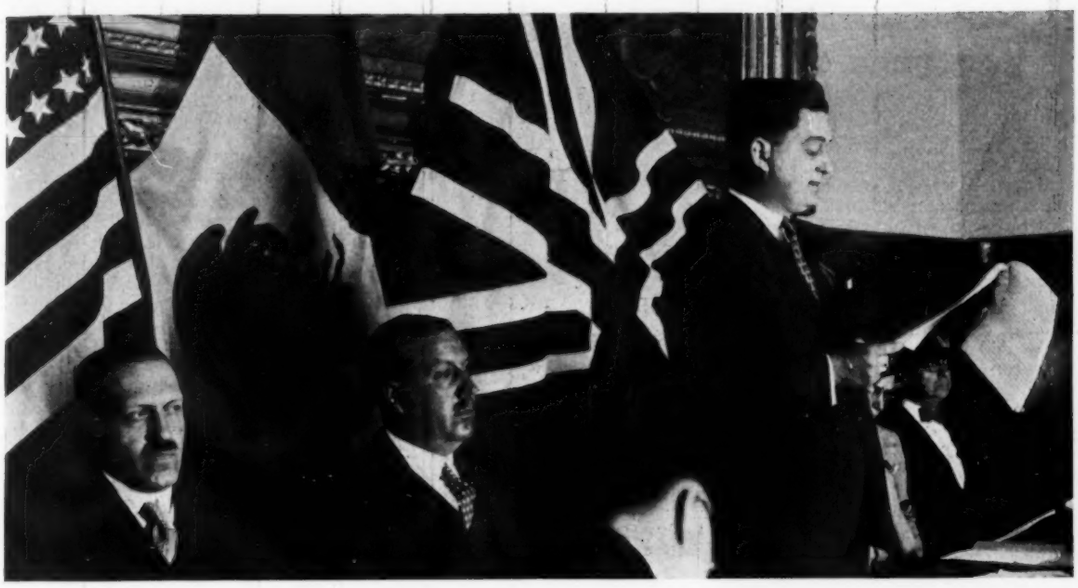
Close co-operation between receiving and delivering lines is necessary to dispose of cars speedily on arrival. Both lines should have their engines prepared to handle at once, and daily reciprocal interchange will increase the speed of disposing of cars.

Detailed consists should be received by the general yardmasters' forces, showing the consignee, and other information, so that the carding for the cars may be made out before the train arrives.

Where carding is done at the destination, yard or carding clerks should be on the track so as to be ready to begin to card the cars as soon as the train stops. Adjusting engines and connecting line transfer engines to meet the inbound trains is also essential.

Weighing will be standardized by some neutral bureau, or settlements made on properly certified invoice weights, these to be checked and audited occasionally by an authorized organization. Automatic scales should be provided at important terminals so that cars can be cut off and weighed as they are dropped over the scales.

We heartily recommend the investigation of the teletype for expediting the handling of cars at destination. Many lines are using this machine at their large city terminals, so that within 15 minutes from the departure of the train, even the wheel



President T. B. Wilson Reading His Annual Repor t. M. Cabrera, Vice-President and General Manager, National Railways of Mexico at Left of Photogra ph and Hon. H. J. Sanchez Mejorada, Minister of Communication of Repuolic of Mexico Next to Mr. Wilson

report is in the car accountant's office, and the full and detailed consist of the train, so that the side cards or switch waybills may be made out some hundreds of miles away, is also in the hands of the distant yard office, as well as in traffic and operating offices.

Discussion

This report was discussed actively and the chairman of the committee was called on to answer many questions suggested by the various conclusions. In reply to one question as to the length of time that a road is warranted in holding empty cars in order to secure full trains, the chairman stated that one large road reported that it holds such cars up to 24 hours to advantage. In reply to another question, Mr. Peck reported that one large road serving Detroit has taken its train line charging system out of service as a means of expediting the forwarding of cars. In reply to still another question, the chairman stated that with one exception the members of the committee favored the placing of classification yards close to the origin of traffic as most economical. Numerous expressions indicated the widespread approval of the committee's conclusions that all track should be long enough to hold full trains. In this connection, it was pointed out that within the last few years the bad order car has largely ceased to constitute a problem.

In the consideration of that portion of the report dealing with the movement of trains between terminals, the suggestion that cabooses be pooled aroused special interest. Chairman Peck referred to three roads on which this is now being done. It was reported that the Great Northern, following the closing of a number of intermediate terminals, now runs both locomotives and cabooses two or more engine districts without detaching them from the train. One instance was cited where trains are operated from Minot, N. D. to Duluth, Minn., a distance of 600 miles in this manner. On the Texas & Pacific, on the other hand, a federal arbitration board held recently, in a controversy with the employes, that this practice should be abandoned.

Numerous members took exception to the conclusion of the committee that the tonnage rating of all but drag freight trains should be fixed so that maximum speed may be made at all times. Referring to the use of water cars, it was reported that the Texas & Pacific had eliminated four stops by the use of a water car on freight trains on one engine district.

In discussing that portion of the report dealing with the carding of cars, A. P. Stevens, district manager of the Car Service Division, American Railway Association reported that during the last year the division had been successful in eliminating the use of the card "Unload From This Side" on 65 percent of the automobile cars loaded in Detroit, Cleveland, Buffalo and adjacent territory and solicitated the cooperation of the superintendents in reducing this still further by seeing that their local agents do not insist on this unless absolutely necessary. N. A. Ryan, division superintendent C. M. St. P. & P. stated that the Chicago and Milwaukee terminals of his road have each been furnished with complete carding instructions for the opposite terminal and now card all cars completely for the opposite terminal, saving much time in placing cars for unloading.

Train Rules

A committee of which C. A. Mitchell, superintendent, New York, New Haven, & Hartford, was chairman, reported on four subjects. The committee repeated its recommendation that, where traffic warrants, trains should be operated by signal indication without train orders. A questionnaire to determine the best method of operating hand or motor cars under protection develops that the methods now used vary widely. This subject was turned over to a special sub-committee for report at the 1930 meeting. The report of Committee 1 of the Signal Section, A. R. A. was quoted giving statistics as to the number of spring switches in use, showing that 58 are now used at the ends of double tracks, 46 at passing sidings and 74 at other points, a total of 178.

As a part of the report of this committee, a paper was presented by George E. Ellis, secretary, Automatic Train Control Committee, A. R. A., which included an illustrated description of the various forms of train control in use and then continued as follows:

Present Status of Train Control

By George E. Ellis

Secretary, Committee on Automatic Train Control, A. R. A., Washington, D. C.

Since the last meeting of the association, all of the train control required to be installed by order of the Interstate Commerce Commission has been completed, and there are now no orders standing against any railroad calling for the installation of automatic train control or similar devices.

Last November a report was issued by the commission on the testimony submitted at the hearings before it in the spring of 1928. This report, which carried a partially dissenting opinion by Commissioner Eastman, stated that no additional orders for the installation of automatic train control devices or automatic block signals would be issued at the present time. Unfortunately, this was construed by some representatives of the press as meaning that the commission had decided to abandon the subject of automatic train control. However, this was far from its purpose, as indicated in the following paragraph under its conclusions:

"The carriers should be diligent in their efforts to provide adequate protection against accidents due to grade crossings, derailments, collisions in territory not protected by block signals, failure of wooden bridges and trestles, and the use of wooden passenger train cars which have been repeatedly mentioned in our recommendations to Congress. This in no way relieves the carriers from the responsibility which rests on them to provide additional protection where needed in territory now equipped with block signals. We shall, therefore, expect them to undertake the necessary studies and tests to bring about standardization of design and method of installation of train-stop and train-control devices, so that they may be used in terminal areas and on joint tracks where traffic density is greatest, without the necessity of expensive and inconvenient duplication of locomotive or wayside equipment." The concluding sentence of the report also states: "The proceeding will be held open for such further order or orders as may be required."

The commission, in its order of November 26, 1928, following the various suggestions made at the hearings by the witnesses, stated that its Bureau of Safety will keep in touch with the development work being done on automatic train control devices and cab signals, as well as the efforts being made to provide adequate protection against accidents at grade crossings, derailments, collisions in unprotected territory, failure of wooden bridges, and the use of wooden passenger train cars.

The following table shows the amount of train control now in operation on the railroads of the United States, and includes the voluntary installations as well as those made under the commission's orders. The cab signal installation being carried out by the Pennsylvania is not included in these figures, although it amounts roughly to 225 miles of road:

Roads having train control installed	44
Road miles equipped	11,412.8
Track miles equipped	20,121.3
Miles of track equipped with continuous control and using cab signals	6,488.9
Miles of track equipped with intermittent control	13,162.4
Engines equipped with both continuous control and cab signals	3,404
Engines equipped with intermittent control	5,463
Engines operated with speed control	1,518

Perhaps it will give a better idea if we consider some of the through passenger routes that are now equipped with train control. The following are among the principal routes:

New York to Chicago
New York to Rouses Point (enroute to Montreal, Que.)
Boston, Mass., to Chicago
Washington, D. C., to Florence, S. C.
Washington, D. C., to Indianapolis, Ind. (except 84 miles between Pittsburgh, Pa., and Altoona)
Cincinnati, Ohio, to Memphis, Tenn.
Cincinnati, Ohio, to New Orleans, La.
Cincinnati, Ohio, to Jacksonville, Fla.
Chicago to Omaha, Neb.
Chicago to Indianapolis, Ind.
Chicago to Detroit, Mich.

An inspection of a map would indicate the several important centers between which train control is installed east of the Mississippi river. When the Pennsylvania completes its proposed plans, its entire line from New York to Washington, D. C., will be protected by cab signals, operating without the train stop element, and a journey could then be made, without change of cars, from New York to Florence, S. C., all on track equipped with either cab signals or train control.

Among the problems confronting roads using automatic train control and cab signals is that of interchangeability. When the first installations were made, pursuant to the orders of the Commission, it was easy to pick out a division which was used only by locomotives of the owning road. Each carrier selected the device which best seemed to fit its needs, with the result that four general types were used, each having two or more examples. Even those of one type were not always interchangeable; the locomotives of any one of the various forms of the continuous type, such as two- or three-speed, or continuous stop, would not operate over the others. The "code" system, where used, has solved this with one type of continuous control.

As train control was extended, it was found that cases of joint operation were becoming frequent, and, in some instances duplicate engine and track apparatus has been employed, thus solving the problem where comparatively short territories are involved. It is, however, recognized that as train control is extended, it will be necessary to have a system over which differently equipped locomotives may operate without too great a duplication of apparatus. This was brought to the attention of the carriers by the commission in its report of November 26, 1928, and it suggested that serious study be given this problem.

The fact being recognized, the Committee on Automatic Train Control of the American Railway Association is engaged in studies to find, if possible a reasonable solution of the problem.

Discussion

In the absence of the chairman, the report was presented by E. M. Price, chief dispatcher, N. P., Seattle, Wash. Interest centered principally around the use of spring switches. P. Slater, supervisor wage schedules, S. P. stated that his road had reduced speed to 15 miles per hour approaching such switches while Mr. Price replied that the Northern Pacific believed that the switches were safe for any speeds the turnout is good for. S. A. Corington, general superintendent, F. W. & D., reported that his road has had three spring switches in service, only one of which is in automatic signal territory, for three years without accident although speed is restricted to 15 miles per hour.

In the discussion of Mr. Ellis' paper, G. H. Minchin, division superintendent, A. T. & S. F., stated that the continuous train control system which was placed in service on his division two years ago has operated with practically no trouble other than the burning out of fuses during severe electrical storms. By this system, which substitutes a continuous cab indication for wayside signals, train movement has been expedited materially and the capacity of the two tracks has been increased at least 35 per cent, while the need for passing tracks has largely been eliminated.

Report on Economies of Increased Tonnage

A report on the economies effected by increased train tonnage, made possible by the use of larger tractive units, was presented by a committee of which J. M. Hood, vice-president, Akron, Canton & Youngstown, was chairman. An abstract of this report follows:

Real progress has been made in handling heavy tonnage trains. The course of this progress is indicated by the following table, which also shows clearly that the handling of heavy trains does not increase the hazards of operation:

	1923	1927	Per Cent Inc. or Dec.
Frt. service, exp. per net frt. ton mile	.9067	.8103	—10.6
Pay roll exp. per gross ton mile	.2787	.2510	— 9.9
All other O. E. per gross ton mile	.2111	.1758	—16.7
M. of W. & S. exp. per gross ton mile	.0814	.0811	— 0.37
M. of E. exp. per gross ton mile	.1466	.1137	—22.4
Av. number of employees—thousands	1,858	1,735	— 6.6
Av. compensation per hour	61.0	64.4	+ 5.5
No. road frt. engines in service (1924)	39,110	36,001	— 7.9
Av. tractive power rd. frt. eng. in service (1924)	46,060	49,186	+ 6.8
No. tons rev. frt. carried 1 mile—millions	412,727	428,737	+ 3.8
Av. rev. per ton per mile—cents	1.116	1.080	— 3.2
Freight train miles—thousands	425	404	— 4.9
Freight train speed—miles per hour	10.8	12.3	+13.9
Gross ton miles per train hour	16,464	21,768	+32.2
Cost per M. GTM. (inc. L. & T.),—pounds	163	130	—20.2
Cars per train	39.4	46.3	+17.5
No. of train accidents, all classes	27,497	18,976	—38.2
Total persons killed in above	412	286	—30.5
Total persons injured in above	5,158	3,072	—39.3
Employees killed per million man-hours	.40	.34	—15.0
Employees injured per million man-hours	31.29	19.87	—36.5

The economies effected by increased train tonnage cover practically the whole range of railroad expenditures, the most outstanding of which is the pay roll reduction of 9.9 per cent. All freight service expense per net freight ton mile decreased 10.6 per cent. This was accomplished in the face of an increase in compensation per hour of 5.5 per cent and in increase in business handled of 3.8 per cent. Long trains, made possible by engines with sufficient tractive effort, together with roadway improvements, including lengthened passing sidings, signal installations, power switches and similar devices, are primarily responsible for the economies enumerated. During the period from 1890 to 1927, ton miles increased 467 percent while freight train miles increased only 37.5 per cent and the mileage of all tracks increased only 82 per cent. Productivity of manpower has likewise increased, as is shown by the fact that the average number of employees decreased 6.6 per cent from 1923 to 1927 although gross ton-miles increased 3.8 per cent.

The public benefits primarily from this increased efficiency by reason of reductions in inventories made possible by fast and dependable freight schedules; it benefits very materially by reason of the decrease in the average revenue per ton mile of 3.2 per cent during the four-year period.

That any increase in hazard has been caused by long trains has not been proved. No Interstate Commerce Commission report has been found which points to the length of trains as a primary or contributing cause. By reference to the table, it will be noted that during the comparative period when train length increased 17.5 per cent, the number of train accidents decreased 38.2 per cent; the total number of persons killed in these train accidents decreased 30.5 per cent and the total number of persons injured decreased 39.3 per cent.

The number of railway employees of all classes killed per million man-hours declined 15 per cent in the comparative period and the number injured decreased 36.5 per cent. Certainly long trains would not have adversely affected safety. It is not believed that long trains have had any appreciable effect upon slid-flat wheels. This is solely a matter of the maintenance of the airbrake apparatus and proper supervision of maintenance and operating employees. If these are lax, results will be poor whether trains are short or long.

The effect upon track maintenance has been good. The larger rail sections, tie plating, additional depth of ballast and similar requirements for the operation of heavy power have tended to decrease maintenance-of-way expenses, even though trains are operated at higher speeds.

Conclusions

The conclusion of this committee is that long trains are not only economically justified, but an absolute necessity to move the business offered at a rate of speed satisfactory to the consuming public and without congestion. The limiting factors are:

1. Ability to accumulate sufficient tonnage for the long trains without unnecessarily delaying a portion of it.
2. Availability of power units of sufficient capacity to handle the long train unit at the required speed.
3. Adequate passing tracks and terminal facilities to handle large units properly after they are under way.

This report was accepted without discussion.

The Acceleration of Freight Trains

In a paper presented in both Spanish and English, B. H. Mann, consulting signal engineer, Missouri Pacific, urged the study of train delays as a means of eliminating them and improving line capacity. He spoke in part as follows:

It has been ten years since the acceleration of freight trains, with the idea of increasing the output per unit, was first applied to a freight train district. Since that time the subject has been presented at three meetings of the association.

So far, the layout of a freight train district has usually been the result of trial and error. To correct this, a study must be made as to the relation between the loss and waste of idle freight train time and the purchase of more power. A standard in output per unit must be set up as a measuring stick for every detail of the freight train trip. Such a measuring stick will permit the comparison of the good work with the bad. To increase the productivity of the entire trip, account must be taken of what can come out of each step of such a trip. When more than a certain number of trains are operated per day on a single track division, every additional train decreases the profits per train, unless the transportation layout on the division is improved or new facilities added.

The Modern Plan

The modern plan comprises three essentials: The separation of planning from performance in the location of the sidings, the picking of the times selected for starting and operating the trains, and a new way for the minute to minute conferring of superiority for the train movement. It consists of analytical study by the management to determine the best method for carrying out each of these three things.

The lack of a uniform measuring stick has hitherto prevented a common understanding and has sometimes resulted in a difference of opinion as to the relative merits of various items of improvement. There has been no common understanding as to just what may be considered as savings from any item of improvement. The point of view of output per unit gives this uniform measure and a common understanding.

How many minutes of idle freight train time will be eliminated by this or that proposed item of improvement? An equitable way of co-ordinating the minutes of idle freight train time with the physical or operating defects of the property, will at once bring into prominence the desirable improvements. It will also bring complete agreement as to the relative order in which the physical improvements should be authorized. Thus there will be no lukewarm handling of the completed improvement upon the part of any officer, because of his belief that he has been ignored in the decision as to what ought to have been done. An improvement, to return the greatest result as an aid in operation, must be the child of the division by right and not by adoption. No urging is needed, once a division officer knows by a fixed measure that delay to his through freight trains may be avoided by some sensible physical change or addition.

Losses of Productivity

There are seven general sources of loss in freight train productivity.

(1) Locomotives assigned to shops for general classified repairs at the end of a fixed mileage. Such repairs include the overhauling of each detail part to make it fit for the fixed mileage. The alternative is to arrange for positive inspection and correction of defects of certain important details every two weeks, increasing the number of details at the end of the month, and further increasing the number at the end of 90 days.
(2) Inspection of the train at a standstill by the road crew at certain stations designated for the purpose as "inspection stations."
(3) Stopping trains on the road to take coal and water instead of "carrying the supplies on the drawbar."
(4) Sidings and coal and water stations not fixed as to location and spacing by the actual movement of the trains.
(5) Stopping of through freight trains for "short loads" where satisfactory service could be provided in other ways.
(6) Too much time taken to change the superiority of trains to permit them to move into or out of stations.
(7) Lack of easy communication between the conductor and engineman on the train and the train dispatcher.

The general means for the correction of these losses in road service include:

(a) Revision of method of repairs of locomotives.
(b) Revision of method of inspection of the train in the yard and on the road.
(c) Redesign of the locomotive tender.
(d) Rearrangement, where necessary, of the sidings and service stations.
(e) Rearrangement of the method of handling the "short load."
(f) Rearrangement and addition of signaling and interlocking.
(g) Addition of radio or equivalent means of communication.

We need a scientific approach to problems of the railroad. We need to see that the belief that "one opinion is as good as another" is not always true. The general form of single track railroad operation has not changed for years, although a mathematical time card, at least for passenger train movement, was known and used more than 40 years ago. The cost of adding extra tracks has increased largely, the demand for more facilities is growing greater day by day while 30 to 40 per cent of the potential earning power of the freight train is lost. New methods must come. Railroads have been slower than any other business to make changes in methods or practices. This has been for the good reason that it has been believed that any change from standard would be so costly.

It is now everywhere taken for granted that no money will be spent for new locomotives or for new bridges except after

thorough scientific research into every detail by trained men. As it now seems economically sound to make a production research in advance of every expenditure where the improvement concerns the relation of the roadway or the power, either singly or together, to the direct movement of the trains, it follows that the executives from the superintendent up should have the aid of a production research bureau of technically trained men for the routine study of the freight train district, with a view to a continued gain in output per unit through a steady lowering of the loss and waste due to idle train time.

Discussion

J. M. McArthur, division superintendent, Canadian Pacific, opened the discussion of this report by stating that after listening to a somewhat similar paper at the San Francisco convention two years ago, he had been able to secure the installation of a centralized dispatching system on a seven mile section of heavy grade and curvature, replacing the staff system with marked success. In this installation remote control switches were installed at each end of the installation, which switches save seven minutes per train. He reported further that in five instances in the last week before he left for the convention, these facilities had saved two hours for trains.

R. Wynne, division superintendent, Texas and Pacific, stated that one installation of two dual-control switches had saved 24 train stops in one direction in a recent 24-hour period and that in another similar period 29 stops were eliminated in the opposite direction.

[The report of the remainder of the convention will appear in an early issue.]

Freight Bill Credit

WASHINGTON, D. C.

THE hearing before Examiner Berry of the Interstate Commerce Commission in connection with the reconsideration of the commission's order in Ex Parte 73 upon petition of the National Industrial Traffic League urging a modification of the rules to permit a greater length of time than 96 hours for the payment of freight charges was resumed on June 11 after an adjournment.

J. H. Beek, executive secretary of the league, supplemented his earlier testimony in support of an extension of time, but failed to make any concrete proposal as to the length of time desired by the league. He said that a circular sent to members of the league had brought 227 replies indicating dissatisfaction with the present regulations and that other organizations, members of the league, had sent out similar circulars. These, he said, together with expressions at annual meetings of the league attended by several hundred members had indicated that an "overwhelming majority" of the shippers who had expressed themselves were in favor of a modification. On cross-examination by Alfred P. Thom, general counsel of the American Railway Association, he said that the circulars had been sent to about 960 members of the league and that 67 replies had been received indicating indifference or satisfaction with the present arrangements. This, Mr. Thom said, indicated far from a complete unanimity on the part of the shippers. Mr. Beek also read many letters from shippers complaining of illegible freight bills, producing some samples which he said indicated a general condition, and said that the railroads often delay sending freight bills. Mr. Thom said that the letters indicated that if proper bills were received in time there would be no difficulty in paying them within the allowed period. He asked if the real issue is not whether the present regulations can be properly administered. When asked what bearing the incorrect bills have on the period to be allowed, Mr. Beek said that they require more time for checking and auditing and that the railroads complain that they want their money promptly although when they could have it promptly they do not render proper bills.

Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, presented analyses of the replies to questionnaires addressed to the railroads as to the effect of a change in the credit regulations, including a statement estimating that the additional working capital that would be needed by the railroads under the extended periods of collection discussed would range from a minimum of $34,000,000 to a maximum of $87,000,000, on which the annual carrying charges at 5¾ per cent would range from $1,955,000 to $5,002,500. The lower figure was based on an extension of the present periods of 48 and 96 hours to 96 and 192 hours, predicated on the supposition that the proportion of patrons paying within the different periods remains the same as at present. The actual facts, he said, would probably lie somewhere within these ranges, but it is difficult and to a large extent conjectural as to where the final totals would be.

Replies were received from 161 roads to a questionnaire addressed under the supervision of the executive committee of the Railway Treasury Officers Association to the treasurers of all Class I railways. These showed that 83.3 per cent of all freight charges in 1928 was collected in cash or from patrons on the 48-hour list, while 16.7 per cent was collected from patrons on the 96-hour list. Collections at time of delivery or forwarding were 10.4 per cent of the total.

One hundred and twenty-three roads furnishing the information reported that they had rendered 211,787,701 freight bills in 1928 and from this it was estimated that 215,000,000 freight bills were rendered in that year. The records show, Dr. Parmelee said, that less than 2 per cent of all freight bills rendered contain errors necessitating refund or correction.

One hundred and thirty roads had replied "no" to a question as to whether there is a "widespread and insistent demand" for extension of the present credit period, as alleged by the National Industrial Traffic League, while 3 had answered "yes" and 3 had replied "some few complaints." Summarizing the replies Dr. Parmelee said, "it seems clear from the returns analysed, representing 98.4 per cent of the total operating revenues of Class I railways, that credit officers know of no widespread and insistent demand for extension of the present credit period. Furthermore, it is the opinion of the great majority that such an extension would involve more work and more expense to the carriers, especially the larger ones, and that the present forces would require expansion. The railway credit officers are not in agreement with the league that there would be fewer errors, with a decrease of overcharge and undercharge claims and wasted time."

A questionnaire was also addressed to station freight agents, of whom those representing 80.9 per cent of freight collections in the month of November, 1928, replied that the present plan is generally satisfactory to their patrons, while 17.3 per cent replies "no".

THE DEPARTMENT OF PUBLIC WORKS of the state of Washington has petitioned the Interstate Commerce Commission for permission to intervene in behalf of the Great Northern and the Western Pacific in the application of those companies to construct a new line in Northern California and Southern Oregon.

The Modern Trend of Railroad Regulation*

Congressional interference is threatening to destroy the constructive policy developed as a result of many years of experience

By Kenneth F. Burgess

General Solicitor, Chicago, Burlington & Quincy Railroad, Chicago, Ill.

FOR purposes of present discussion, the history of railroading in the United States may be divided into three eras. Each of these brought its own problems and its own solutions. The first of these eras may be called the period of railroad construction and development. In point of time it was by far the longest period, beginning about 1810 and ending in the 90's.

Toward the close of the period the public developed a marked hostility to railroad management, beginning with the so-called granger movement of the 70's when the prices of farm products were at a low level. Some of the Western states passed laws reducing freight rates and some few of them created commissions for the purpose of regulating the railroads. Such regulation, however as was practiced during this period, was largely legislative regulation. The problems of the period developed a certain type of railroad lawyer who is practically unknown today, but who, at the height of his power, was a unique figure. He was first of all a financial advisor. Besides this he was a skilled lobbyist and a political organizer of the highest order. The conditions of the times made this necessary. He had to protect the railroads against adverse legislation and in order to accomplish this he frequently was a dominant factor in the politics of one or more of the states. As the period of railroad construction and development came to a close, there was a revulsion of feeling against the policies and methods pursued by the railroads, which had been but the natural result of the history of the times and of the methods by which railroads were then regulated, that is, by direct legislation.

The second era of railroad history, I shall define as the period of commission regulation of rates and service. It really came into full force and vigor with the so-called Hepburn Act of 1906, which put an end to rebating and gave to the Interstate Commerce Commission the power to enforce its orders prescribing reasonable rates. It was a period in which the public, through the medium of commissions, sought to regulate both the rates and services of these railroad companies. The public realized that the method of regulating railroads by direct act of the legislatures was a failure. It found the problem was one which required careful study by men who would have a continuing responsibility. It therefore provided for commissions made up largely of laymen. The theory was that these commissions would express the judgment of the public and that they were representatives of the public. The attitude of the courts from the outset was that they would not interfere with the decisions of these commissions unless some principle of statutory or constitutional law was involved. The primary function of these commissions was to pass upon the reasonableness of rates, the adequacy of service, and also in some instances to determine the value of the railroad property, because it was recognized that rates should bear some relation to a return on value.

Moffett

Kenneth F. Burgess

Present Tendency of Regulation

The third and last era in the development of railroad regulation I shall describe for the purposes of discussion as the post-war era, and it is from the developments of this period that we must determine the present and future trend of railroad regulation. It is characterized by two conflicting and, I think, wholly inconsistent tendencies. The first of these was an enlargement of the jurisdiction of the Interstate Commerce Commission so as to include not only the regulation of rates and service, but the regulation of railroad management as well. The Transportation Act of 1920 accomplished this. Among other things it extended the jurisdiction of the Commission to the field of management (a) by curtailing the powers of the state commissions and giving to the Interstate Commerce Commission a sort of supervisory jurisdiction; (b) by authorizing the regulation of issues of securities, stocks and bonds; (c) by regulating the sale and acquisition of railroad property; (d) by providing that no construction of new railroads or abandonment of old railroads should take place until the commission approved; (e) by giving to the commission jurisdiction in the matter of consolidation of railroads; and (f) by providing that permission must be secured from the commission before one man could act as director of more than a single railroad. The commission has also in some instances asserted the right, under this act, to pass upon matters of efficiency and economy of operation. In one of the first decisions of the Supreme Court of the United States concerning this enlargement of power, Chief Justice Taft characterized the law as a "new departure" in which the carriers were "brought more than ever before under the fostering guardianship of the Interstate Commerce Commission."

As a result of these things the railroad business became more than ever a public business. The railroads continued to be operated by private corporations, but these corporations and their officers were subject to such a sweeping power of regulation that it was enforced upon them, from the railroad president down to the most humble track laborer, that they were employed in the public business.

* From a recent address before the Railway Club of St. Louis.

The enlargement of the jurisdiction of the Interstate Commerce Commission was upon the theory that the commission should be more than ever responsible to the public for the continued maintenance of adequate transportation. Congress believed that the best interests of the country required that this commission, which theretofore had been regulating only rates and service, should now be responsible to the public to see that the railroads were well run and adequately maintained, not only for the present, but for the future as well. The principle of commission regulation was retained.

Five years later, or in 1925, there developed the second tendency of this era, a tendency in fundamental conflict with all that had gone before. It may be described as a period of congressional, or better perhaps of senatorial, interference with railroad regulation.

I shall give you five illustrations of what I mean. From 1920 through the year of 1924 the Interstate Commerce Commission and the state commissions heard and decided a number of cases involving the demands of farmers for reductions in the rates on the products of the farm, ranch and orchard. Grain rates were reduced in amounts varying from 15 to 20 per cent, and other rates on the products of agriculture were subjected to large reductions. All of these cases were decided upon voluminous records, after careful investigations by the regulatory commissions. Yet, in January, 1925, Congress passed a joint resolution, which is known as the Hoch-Smith resolution, in which the Interstate Commerce Commission was directed to embark upon an entirely new undertaking. No one yet knows exactly what this resolution means, but it did declare that the commission should, with the least practicable delay, put into effect the lowest possible lawful rates on the products of agriculture and that in making rates for the future it should take into account the present and future conditions of particular industries which ship freight.

This resolution was recently described by one of the members of the Interstate Commerce Commission as undertaking to make the railroads a sort of economic shock-absorber for the country. If it be interpreted literally it is perfectly impossible of execution, because the railroad commissioner of the future would have to become a sort of clairvoyant. He not only would have to investigate as to the internal conditions of every sort of industry which shipped freight, but he would have to prognosticate as to the future of industries in order to determine what would be necessary and wise. Since this resolution was enacted, the whole processes of the Interstate Commerce Commission have been devoted largely to investigating these economic conditions which do not concern railroad transportation, except in a remote degree. Whatever it may finally be held to mean, it is perfectly clear to any student of the situation, that the Hoch-Smith resolution was in essence a criticism by Congress of the judgment of the commission in the cases which it had been deciding on voluminous records after careful investigation and was passed upon the solicitation of unsuccessful litigants and their political supporters.

The Senate Shows Its Ignorance

The second example of this sort of senatorial interference with the processes of regulation is epitomized in the so-called Wheeler resolution, passed by the Senate on May 3, 1928. Therein, the Interstate Commerce Commission was directed to report as to whether the rates on grain and livestock in Canada would not be compensatory for American railroads in the northwest, and, if they would be, to reduce the rates of American railroads to the basis of the Canadian rates. The Interstate Commerce Commission had already made a report on this matter in respect to the grain rates, showing that the railroads of Canada were exempted from taxation by the Canadian government upon an agreement that they would make low grain rates. The really humorous part of the Wheeler resolution, which shows how impossible it is to regulate these railroads by direct legislation, was the inclusion in it of reference to the Canadian rates on livestock. The fact of the matter is that the rates on livestock in Canada are very much higher than the rates on livestock in the United States, a matter well known to the Interstate Commerce Commission. Yet the Senate of the United States, which, of course, is not skilled in or acquainted with technical matters of railroad regulation, adopted this formal resolution, indicating its desire that the rates on livestock in the United States should be the same as those in Canada.

The third example to which I will refer is even more striking. One of the outstanding features of this third, or post-war era of railroad regulation, has been the tremendous decline in passenger traffic. The inventive genius of the American people has developed the automobile and provided these magnificent highways over which it travels, and this in turn has had a marked effect on passenger travel by railroad. In 1920 the western railroads received in passenger revenue $526,000,000. In the year 1928 this was reduced to $297,000,000, a decline of 43 per cent. It was not so much the automobile bus, but, rather the privately owned automobile, which resulted in this loss of passenger business. The short-haul passenger business had almost disappeared and it is probably gone forever from the railroads. The long-haul passenger business has also been affected.

Faced with this situation, the Interstate Commerce Commission, in order to provide in part for adequate revenues, decided in 1920 that the railroad companies should make additional charge against passengers riding in Pullman cars, popularly known as the Pullman surcharge. In 1924 the reasonableness of this charge was attacked by an association of commercial travelers, and the Interstate Commerce Commission entered upon a prolonged investigation into the matter, during the course of which it held hearings throughout the country from Portland, Maine, to Portland, Oregon. Finally, in January, 1925, it rendered its decision to the effect, first, that the reduction in passenger revenues by reason of the loss of the short-haul business was such that the railroads needed to continue to charge the Pullman surcharge; second, that the value of the service which the Pullman passenger received was such that it was proper that he should continue to pay this charge; and third, that the charge was reasonable from the standpoint of the cost of the service. These commercial travelers then resorted to Congress and in each of the subsequent sessions the Senate Committee on Interstate Commerce has held long hearings concerning the matter of the Pullman surcharge, in which it has virtually undertaken to retry and review this decision of the Interstate Commerce Commission. Twice bills providing for the legislative abrogation of this Pullman surcharge have been passed by the Senate, but failed to pass the House of Representatives. I mention this because it is a striking and glaring example of the present tendency on the part of legislative bodies not only to interfere with the processes of commission regulation, but actually to undertake to retry these cases in the limited time which the legislative sessions provide.

The fourth example of this modern tendency is to be found in a resolution passed by the Senate of the United States on May 7, 1928, and directed at the Supreme Court of the United States. There was then pending before the Supreme Court a case known as the O'Fallon valuation or recapture case. It involved conflicting

theories as to the value of railroad property. The Interstate Commerce Commission had made an order against the carriers in which, broadly speaking, it had expressed the view that the value of railroad property was to be determined upon the basis of its reproduction value at pre-war prices. The position of the railroads was, again speaking broadly, that this decision was wrong because it failed to take into account in adequate degree the increased cost of reproducing railroad property on the basis of present labor and material costs.

In the court below an association of representatives of certain farm and labor organizations and others, called by themselves the National Conference on Valuation of American Railroads, had appeared by counsel and had presented a third view. This view was that the value of railroad property was not a matter for judicial determination at all, but that its value would depend upon the rates which it was permitted to receive. This association was represented in the lower court by a lawyer named Donald Richberg. When the case reached the Supreme Court of the United States, the parties filed their briefs and Mr. Richberg filed his brief as a friend of the court. The Supreme Court of the United States has a rule that persons filing briefs therein as friends of the court will not be permitted to argue orally without the consent of the actual parties to the controversy. So Mr. Richberg resorted to the Senate of the United States, and in response to his request the Senate very promptly passed a resolution by a vote of 46 to 31, requesting the Supreme Court to waive its rule and hear from Mr. Richberg orally. I say that this is legislative interference with the processes of regulation with a vengeance.

What President Roosevelt Said

The fifth and final example of this modern tendency to which I wish to direct your attention is the present attitude of the Senate of the United States in respect to the confirmation of reappointments to the Interstate Commerce Commission. Early last year Commissioner Esch was reappointed to the commission by President Coolidge. His appointment had to be confirmed by the Senate and when the appointment was referred to the Senate Committee on Interstate and Foreign Commerce it held a protracted hearing which amounted to a retrial of a certain rate case known as the Lake Cargo Case, in which Commissioner Esch had voted with the majority of the commission. The parties who had appeared before the commission in this case were heard and finally, because the Senate did not seem to approve of the decision which had been made, the reappointment of Commissioner Esch was rejected. Some few months thereafter another commissioner, Commissioner Aitchison, was reappointed to the commission, and again the Senate Committee on Interstate and Foreign Commerce proceeded to hold hearings inquiring into the views which this commissioner entertained on telephone valuation and other matters. His reappointment was finally confirmed, but the effect of this sort of procedure upon the independence of the commission remains to be seen.

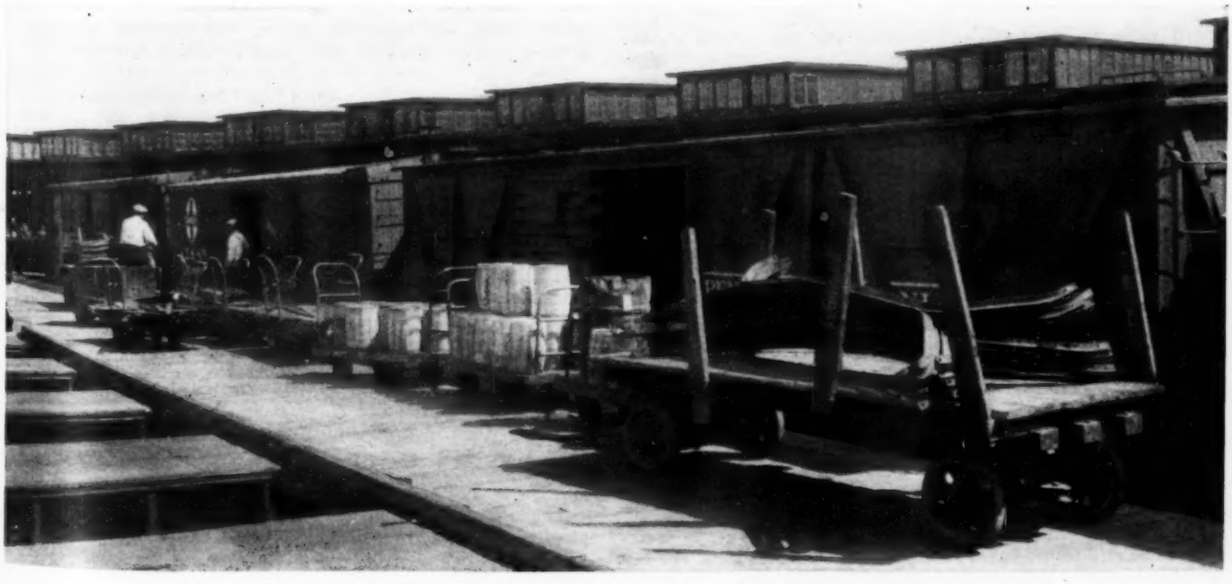
This, it seems to me, is the modern trend of railroad regulation. How far will it go? What will be its effect? Will it drive the railroads back into politics? Will it destroy the whole theory of commission regulations? I am not enough of a prophet to undertake to answer these questions.

Permit me, however, to quote from the famous speech of Theodore Roosevelt when, as President of the United States in 1905, he announced his famous doctrine of the square deal, just prior to the Hepburn Act of 1906, which gave vitality to the Interstate Commerce Commission. He then declared:

"It must be understood, as a matter of course, that if this power is granted, it is to be exercised with wisdom and caution and self-restraint. The Interstate Commerce Commissioner or other Government official who failed to protect a railroad that was in the right against any clamor, no matter how violent, on the part of the public, would be guilty of as gross a wrong as if he corruptly rendered an improper service to the railroad at the expense of the public. When I say square deal I mean a square deal; exactly as much a square deal for the rich man as for the poor man; but no more. Let each stand on his merits, receive what is due him, and be judged according to his deserts. To more he is not entitled, and less he shall not have."

Let us measure the present trend of railroad regulation in the light of these statements to ascertain where it is taking us.

* * * *



Material Handling Methods on the Santa Fe at Topeka, Kan.

New Books

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

European Labour on the South African Railways and Harbours. How approximately 25,000 persons were given jobs, housed, fed, trained, and in some cases promoted. An interesting study in sociology as well as railroading. Issued as Special Bulletin no. 135. 17 p. Pub. by General Manager's Office, South African Railways and Harbours, Johannesburg, South Africa. *Apply.*

Organization and Manner of Work of the Interstate Commerce Commission, by Clyde B. Aitchison. A lecture under the Cyrus Fogg Brackett Foundation before the School of Engineering, Princeton University, March 19, 1929, printed as Senate Document no. 8, 71st Cong., 1st session. 34 p. Pub. by U. S. Govt. Print. off., Washington, D. C. 5 cents.

Preliminary 1929 Edition, Railroad Facts Number Seven, 1928 statistics with some earlier ones grouped under "The Railway Plant", "The Railways' Service", "The Railways' Earnings" and "Good Railroading." 37 p. Pub. by Western Railways' Committee on Public Relations, Chicago, Ill. *Apply.*

Translating Railroad Statistics. The real meaning of "the average daily distance traveled by freight cars has been increased more than 5 miles" [since 1920]. Timely Railroad Topics, No. 287. 4 p. Pub. by Atlantic Coast Line Railroad Company, Wilmington, N. C. *Apply.*

Periodical Articles

After the O'Fallon Decision, by Donald Richberg. "The acceptance of a fair valuation of the consolidated properties, as a future rate-base could properly be required as a condition of permission to consolidate." p. 63. New Republic, June 5, 1929, p. 62-63.

L'Aspect Economique des Transports par Chemins de Fer en Grande Bretagne, by Marcel Peschaud. An incisive review of Sherrington's "Economics of Rail Transport" including also an evaluation of recent reports and studies of railway conditions in Europe and the United States. Revue Politique et Parlementaire, May 10, 1929, p. 200-231.

Building America's First Railroads, by Agnes C. Laut. Illustrated with old drawings and photographs this article should be helpful to teachers whose courses involve transportation history. Travel, May 1929, p. 21-26, 44.

Canada and Some of Her Transport Problems, by James Cuthbertson. "In Canada there are 220 persons per railway mile; Great Britain, 2,000; the U. S. A., 400." Journal of the Institute of Transport, May, 1929, p. 368-370.

Harriman of Aviation. As One Man Dominated Expansion of Railroads So C. M. Keys Guides Air Highway Development, by Howard Mingos. "Harriman . . . was the dominant figure in an age of steel and steam. Keys has his dominion in the air." Washington, D. C. Star, June 2, 1929, part 2, p. 1, 5.

Ore Handling at the Utah Copper Company's Mine and Mills, by H. C. Goodrich. Transportation in connection with operations at the mine in Bingham Canyon, and transportation of the ore from the mine over the main-line railroad to the mills at Magna and Arthur are described on pages 419-421. Illustrated. Mechanical Engineering, June 1928, p. 415-422.

The Railroad Victory in the Supreme Court. Compilation of varying editorial opinion on the decision in the O'Fallon case. Literary Digest, June 1, 1929, p. 8-9.

What Homer Loring, Business Doctor, Prescribes, by Peter F. O'Shea. Sketch of reorganizations of various sorts effected by Mr. Loring. Magazine of Business, May 1929, p. 522-523, 558.

Looking Backward

Fifty Years Ago

The United States Supreme Court has decided that the Thurman Act of 1878, which requires that the Union Pacific and the Central Pacific [now part of the Southern Pacific] contribute 25 per cent of their net earnings, which are defined as "all that remains from gross earnings after paying working expenses and interest on the first mortgage bonds" that have priority over the government lien, is constitutional. One half of the government transportation is to be applied to liquidating the interest due the United States, and the other half, with cash enough to make the total equal to 25 per cent of net earnings, shall, on February 1 of each year, be turned into a sinking fund created by the law to extinguish the principal.—*Railway Age,* June 12, 1879.

The Sioux City & St. Paul [now part of the Chicago, St. Paul, Minneapolis & Omaha] has placed in service on its lines between St. Paul, Minn., and Council Bluffs, Iowa, 12-section sleeping cars which have no upper berths, no state room or smoking room. Among the rules displayed in each car is one which states that "porters are fully paid by the company for all services. They are forbidden to accept from passengers any fee or gratuity under any circumstances."—*Railway Age,* June 12, 1879.

The Master Car Builders' Association, meeting at the Grand Pacific hotel at Chicago on June 10, appointed a committee of three on the "subject of freight train brakes, which committee shall, if practicable, take steps toward the thorough practical test of such brakes as shall seem worthy of experiment." One style of brake, which it was thought might meet the requirements, operates in connection with the buffer and by friction upon the axle.—*Railway Age,* June 12, 1879.

Twenty-Five Years Ago

The census office is now entering upon the task of determining the true wealth of the American people, including the determination of the value of railway property. Railway values have never been accurately determined in any statistical inquiry. The results of the work of the census office in 1890 were ridiculous. They gave a higher value to lines built across Nebraska than to those located in New Jersey where most of the railways are simply the terminal sections of great systems.—*Railway Age,* June 17, 1904.

In 1899, the railways of the United States were able to carry 189 passengers and 1,602 tons of freight one mile for every dollar spent for coal, while in 1902, owing to the advanced price of coal, one dollar's worth would move only 164 passengers and 1,310 tons of freight.—*Railway Age,* June 17, 1904.

Ten Years Ago

The appropriation of $1,200,000,000 asked of Congress by Director General Hines to enable him to pay his bills and temporarily finance the capital expenditures of the railroad companies, was reduced to $750,000,000 by the House appropriations committee on June 9 and the bill was passed on the following day by a vote of 305 to 4.—*Railway Age,* June 13, 1919.

The Senate on June 11 passed the Cummins' bill which gives the Interstate Commerce Commission jurisdiction over interstate rates, but leaves the matter of state rates in the hands of the director general of railroads.—*Railway Age,* June 13, 1919.

Odds and Ends of Railroading

So many women are smoking in Germany that the Federal Railways Administration has found it necessary to order each coach divided into equal sections, one for smokers, the other for non-smokers.

An Eleven-Foot Waybill

What is claimed to be the longest waybill on record was issued recently by the Atlanta agency of the Southern in making a bid for a world's championship. Agent C. G. Walker calls attention to Atlanta waybill 65492, dated March 8, 1929, covering a shipment to Huntsville, Ala. This waybill, 11 ft. in length, carried 343 items, calling for 984 packages. The consignor's shipping ticket was more than seven feet in length, single spaced.

Covered Bridges

A reader of the New York Herald Tribune writes to that paper inquiring as to whether there is more than one covered railway bridge in the country. He claims to have traveled widely, but remembers having seen only one such bridge, on the Boston & Maine, near Hooksett, N. H. That this is by no means the only covered railway bridge in the country is indicated by an article appearing in *Railway Engineering and Maintenance* for August, 1923, page 320, which describes several such bridges on the western lines of the Chicago, Milwaukee, St. Paul & Pacific, where, beginning in 1910, a number of bridges with Howe trusses were equipped with siding of one-inch shiplap, and roofs of galvanized iron laid on one-inch boards, to preserve the service life. Are there any more covered railway bridges?

Red Cap Talk

"The gen'leman slips her a bird; an' she splits the bird on me." Thus a Red Cap watching the Washington express pull out of the New York station expressed his grievance to a fellow porter. No comment on the other's part seemed necessary. Such a misfortune occurs too often to be particularly notable. Translated: A man had come to the train gate to see a lady off on her journey. As a tip to the station porter a quarter had been slipped into the lady's hand—a quarter being a "bird" in Red Cap slang. But the thrifty lady, sad to say, had elected to pass on the porter only ten cents, thus "splitting the bird on him." The disappointed porter might have "'lowed that he got only a 'smooth'"—which is a dime; but which is better than the ill-esteemed nickel, which is popularly known as a "pick". On the other hand, a "turkey"—being fifty cents—is a gratuity to rejoice over; and a whole dollar bill brings the ejaculation, "Oh, sweet momma! 'A lamb's tongue!'"—New York Times.

Stations in Germany

"Germans in the Middle Ages built their castles and palaces on high promontories or on slopes overlooking pleasant landscapes. The modern German builds his palaces on the railway lines, and prides himself that his stations are the greatest and stateliest in the world." Thus comments the London Morning Post's Berlin correspondent, with a certain amount of truth. It is pointed out that Leipzig station, with over 20 platforms, is a palatial brick edifice, containing all possible conveniences for the traveller besides the usual waiting-rooms and restaurants, with the cogent added remark: "But if you happen to come in by the entrance leading to platform No. 1 and are looking for No. 19 you wonder why there is no motor-bus or tram to take you there." "Stuttgart, the capital of Wurttemberg, advertises its station as one of the sights of the town. The skyscraper station tower contains a restaurant and part of the new hotel run by the State Railways."

Pachyderms

Elephants have a peculiar fascination for many people, including the present writer. Railway men seem peculiarly susceptible to the huge, lumbering, yet somehow graceful beasts, and elephant replicas of all sizes and materials are frequently to be seen in the private offices of railway executives. Two of these men have really magnificent collections. C. W. Galloway, vice-president of the Baltimore & Ohio, has a charging, trumpeting herd of nearly 50 elephants on a table in his private office, while E. H. McReynolds, of the executive department of the Missouri Pacific, has some 36 elephants scattered about his private office, including a large one, made of porcelain of rare workmanship, brought from Mexico.

It's a System

Progress of railroad engineering in our fair land as recorded in the Augusta (Ga.) Augustan

Allendale, S. C.—The Caesarian operation is not a new method of bringing life into the world, but probably never before in history has a train been known to perform the operation. However, there is at Appleton a little wobbly new calf that can bear testimony to the efficiency along that line of the Atlantic Coast Line Special, bearing roadway inspectors, which passed through Appleton this week. A valuable milk cow belonging to J. P. Guess, of Appleton, got on the track and was run over by this train. The train was stopped and the engineman, along with others on the train, got out. While looking at the badly mutilated body of the fine cow, they were astonished to see a well developed calf emerge, sniff the breezes of a delightful new world and stagger adventurously off on his brand-new legs. After the observers had gotten their breath, they gave chase, caught the calf and wrapped it up, as, from time immemorial, has been the lot of all just-born babies.

The First Electric Freight Locomotive

The New York, New Haven & Hartford has in its possession a relic of considerable historical interest—the first electric locomotive to be built in this country for freight service, and one of the earliest examples of the application of electricity to motive power. The Pullman Car Company built the locomotive and the Van Depoele Company supplied the bi-polar motor. The locomotive was used on the Ansonia, Derby & Birmingham, which later became a part of the Connecticut Company,

A Pioneer in Electric Power

a subsidiary of the New Haven. Clearance limitations of a bridge under which the locomotive was obliged to pass, necessitated the lowering of the roof. This involved dropping the floor of the cab on either side of the motor to provide headroom. The trolley pole and frame were dismounted whenever the locomotive passed under this bridge, power being provided by means of a flexible cable.

NEWS *of the* WEEK

B. & M. Bridge Over Connecticut River at [illegible]

J. B. V. DUER, electrical engineer of the Pennsylvania, whose office has been in the Juniata shops, Altoona, has moved to Philadelphia, together with practically the whole of his force of engineers and draftsmen, about 40 men.

J. FRED HULL, postmaster and editor of Marysville, Mo., has been appointed a member of the Missouri Public Service Commission for a six-year term ending April 15, 1935, succeeding J. P. Painter.

AN EXCURSION of veteran employees of the Reading Company to New York City on Saturday, June 8, numbered about 2000 men, women and children; and another excursion on the same day, that of the veterans of the Pennsylvania, on the Middle Division, which went to Washington, was made up of 518. This was the eighth annual outing of the Veteran Employees' Association of the Middle Division.

THE NEW YORK CENTRAL on June 3, petitioned the Public Service Commission of New York for an extension until July 1, 1931 of the time for the complete electrification of its West Side freight line in the city of New York. The petition shows that under the terms of an order of the Commission granted in 1926 the time for this work was extended to July 1, 1929, without prejudice, however, to the right of the petitioner to apply for a further extension of time.

Wage Statistics for March

The number of employees reported to the Interstate Commerce Commission by Class I railroads as of the middle of March was, 1,628,388, and the total compensation was $241,149,777, according to the commission's monthly compilation of wage statistics. Compared with the returns for the corresponding month of last year, the summary for March shows an increase of 0.12 per cent in the total number of employees. The total compensation increased 1.48 per cent.

C. & N. W. Moves General Offices

The Chicago & North Western, on June 7, started moving its general offices from 226 West Jackson boulevard, Chicago, to the Chicago Daily News building at Canal and Madison streets, where it will occupy Floors 9 to 16 inclusive. The moving will require 12 days. Executive and departmental offices in the new building will be furnished in walnut to harmonize with the general decorative scheme. This plan will be carried out eventually in all departments. The North Western general office has been located on Jackson boulevard since 1905, moving there from offices at the corner of Lake street and Fifth avenue (now Wells).

New York State Grade Crossing Program Is Progressing

To June 4, according to an announcement made by the New York Public Service Commission, there had been a total of 336 orders by the commission in proceedings to eliminate dangerous grade crossings in the state outside of Greater New York, and involving 518 crossings.

Of these, 60 projects have thus far been completed, involving 82 grade crossings, and 66 are under construction, which involve 109 crossings. The estimated cost of the work now under construction is $5,711,795. Nine projects are now ready for letting and 11 are ready except for the land.

Norfolk & Western Station Service Department

The Norfolk & Western has organized a new department, the Station Service department, the general duties of which are to promote economy and efficiency in station operation, better co-operation in the handling of traffic, especially in the loading and unloading and transportation of freight, and general improvement in the service at all stations. The new department has charge of agency operations along the channel of investigation and suggestion and its duties in no wise affect the authority and responsibilities for the proper operation of stations now resting with the division and department officers.

The department is under the jurisdiction of J. B. Baskerville, general claim agent and is headed by C. H. Brown, superintendent of agencies. Eight other men constitute the remainder of the personnel, seven of whom are known as station supervisors while the eighth is a clerk. The supervisors spend the majority of their time on the road making inspections of stations, with the view to helping agency forces to secure a better understanding of the requirements of the service.

Trespassers Killed, 156,000

This represents casualties on American railroads, but it is the total for 38 years; and this figure, along with the item of 169,000 trespassers injured, is taken as the text for the regular monthly circular, issued by the Safety Section of the American Railway Association, suggesting activities for railroad safety committees during the month of July.

Attention is called to the fact that of the 325,000 casualties, 35,000 represent children under 14 years of age. One-third of all the fatal injuries on the railroads are chargeable to trespassing on the tracks. There has been a great reduction in the number of persons killed while walking on the tracks since 1915, the American tramp being less numerous than in former years, but there is still much room for improvement.

The circular contains pictures of typical kinds of carelessness, including one in which everybody is warned not to walk through a tunnel; one showing a man sitting down to rest on the end of a tie and one where a boy is teaching his sweetheart to walk on the rail. The new chairman of the Committee on Education, which issues this circular, is E. R. Cott, of the Hocking Valley.

A Nine-Year Record

One hundred and nineteen carloads of live stock have been killed on the Gulf, Mobile & Northern within the past nine years; and President I. B. Tigrett has issued a circular calling upon employees of the road and owners of cattle to join in a concerted effort to avoid this waste. These animals, numbering 5,732, did not constitute actual carloads; they were struck while walking, standing or lying on the track; that is to say, the aggregate of the items shown on the com-

pany's records represents a sufficient number of animals to fill 81 cars with cattle, 6 cars with horses, 11 with mules, 11 with hogs, and three with sheep. On account of these casualties, the company has paid to the owners of animals upwards of $20,000 a year. Mr. Tigrett proposes to property owners that the line of the road be fenced on a co-operative basis; under suitable conditions the railroad will furnish wire and staples, the owner posts and labor.

The circular calls attention to certain items of credit and debit, on a single day, as follows: The passenger trains on a certain branch, on that day, made four trips and the fares amounted to $25. On the fourth trip the train struck and killed a mule, the value of which animal was $25; profit for the day—?

Court Action Continues Cleveland Terminal Delay

The United States Circuit Court of Appeals at Cincinnati, Ohio, in an opinion handed down on June 8, vacated the injunction decree of the United States District Judge at Cleveland, Ohio, restraining the defendants in the suit of the Pittsburgh & West Virginia vs. the Wheeling & Lake Erie, et al from executing a contract to the Terminals company leasing the Ontario Street Passenger station of the Wheeling at Cleveland for use in connection with the construction of new station facilities.

Construction of a portion of the Cleveland terminal improvement involved in this court action, which it was expected would be resumed on June 10, was again delayed when Frank E. and C. F. Taplin, president and general counsel of the Pittsburgh & West Virginia, obtained a stay of execution. This action will remain in effect until such time as the appellate court can consider an application for a rehearing of the case in which the injunction was set aside. A petition for rehearing was filed by the Taplin's at Cincinnati on June 10 and it was expected that a decision on this petition would be forthcoming before the end of the week

Switchman Killed; S. C. Supreme Court Reversed

A member of a switching crew was killed when he stepped off the footboard of the switch engine in a yard into the space between the northbound and southbound lines and swung or was swung into the pilot sill of a passenger train on the southbound line which was passing at from 35 to 50 miles an hour. The clearance from rail to rail was 7 feet 8½ inches. There was no duty on the deceased to leave the switch engine, though it was optional for him to get off and throw a switch. He struck the side of the engine behind the pilot, where he could not have been seen by the engineman. The Supreme Court of the United States has reversed judgment of the South Carolina Supreme Court affirming judgment for the plaintiff in an action under the Federal Employers' Liability Act for the death, holding that there was no ground upon which liability of the railroad company could be predicated. The speed of the passenger train was plainly not a proximate cause of the injury, as the engine of that train did not run into the switchman, but he, as the result of his own action, was thrown against the side of the engine as it was passing. Atlantic Coast Line v. Driggers. Decided June 3, 1929. Opinion by Mr. Justice Sanford.

Railway Claim Agents' Meeting

The Association of Railway Claim Agents will hold its fortieth annual convention at the Hotel Statler, Detroit, Mich., on June 19, 20 and 21.

The program follows:

WEDNESDAY MORNING, JUNE 19

Address of welcome: Hon. John C. Lodge, mayor of Detroit.

Address: Frank H. Alfred, vice-president, Pere Marquette.

Annual address of president and report of secretary-treasurer.

Organized Solicitation of Damage Cases (Ambulance Chasing). History of Ambulance Chasing, by Frank A. Hruska, N. Y. C. Counteracting Ambulance Chasing, Dr. J. M. Gibbons, N. Y., N. H. & H.; Rodger M. Trump, C. M. St. P. & P.; Edward C. Craig, Illinois Central; Orin E. Smith, N. Y. C.; H. E. Cain, Pennsylvania.

WEDNESDAY AFTERNOON, 2 P.M.

Boat trip up the Detroit river, across Lake St. Clair and up the St. Clair river to Tashmoo park.

THURSDAY MORNING

Physical Examination of Employees, by Frank V. Whiting, N. Y. C.

Rahabilitation of Injured Employees, by John E. Newman, Southern Pacific.

The Claim Agent's Best Compass, by Smith R. Brittingham, S. A. L.

Employment Methods to Come, by S. M. Copp, Ill. Central.

Effect of Goodman Decision—Congressional Activities to Destroy It, by J. J. Donohue, L. & N.

Artistic Side of Claim Work, by Robert Irwin, A. T. & S. F.

Interesting Experiences of a Claim Agent, by J. S. Douglass, G. C. & S. F., and J. D. Abbott, O. S. L.

THURSDAY AFTERNOON

Trip through the Ford Company's River Rouge Motor Plant, under the direction of H. S. Johnson, general claim agent of the Detroit, Toledo & Ironton.

THURSDAY EVENING

Banquet at Hotel Statler, followed by dancing.

FRIDAY MORNING

Final Business Session and election of officers.

Seventieth Anniversary of Hannibal & St. Joseph

The Chicago, Burlington & Quincy and citizens of Brookfield, Mo., on June 6 in that city celebrated the seventieth anniversary of the opening to traffic of the Hannibal & St. Joseph (now a part of the Burlington), the first railroad to run trains across the State of Missouri. Officers of the Burlington who attended the celebration, which took the form of a pageant followed by a program of speaking, included W. F. Thiehoff, general manager of the Eastern lines, and Albert Cotsworth, Jr., passenger traffic manager.

The Hannibal & St. Joseph was incorporated under a special act of the Missouri Legislature on February 16, 1847, and construction was completed from Hannibal, Mo., to St. Joseph on February 13, 1859. Through traffic was started two days later.

The railway postoffice had its inception on the Hannibal & St. Joseph, according to a booklet issued in connection with the celebration by F. E. Williamson, president of the Burlington, William A. Davis, then in charge of mail distribution at St. Joseph conceived the idea that if the overland mail could be sorted on the train, before it reaches St. Joseph, much delay in forwarding the mail could be avoided. Mr. Davis was given permission by the federal postal authorities to try his scheme and two distributing postoffice cars were built in the railroad's shops at Hannibal in 1862. The first west bound trip from Quincy, Ill., with one of these cars was made on July 26, 1862.

Grand Jury Indicts D., T. & I. For Tariff Violations

The Detroit, Toledo & Ironton was indicted by a Federal Grand Jury at Columbus, Ohio, on June 8, on 25 charges of having solicited and received illegal coal rates in violation of the Elkins Act, involving a loss to shippers of $140,000. The Interstate Commerce Commission had charge of the investigation.

The indictment deals with shipments of coal by the Fordson Coal Company from Hardy, Ky., and from Stone, on the Norfolk & Western. It is alleged that the coal was actually destined for Ironton, Ohio, and Jackson, but, was delivered to the N. & W. at Hardy for shipment to South Charleston, Ohio, on the D., T. & I., north of Ironton and Jackson. It is charged that the coal was delivered by the N. & W. to the D. T. & I. at Glen Jean, Ohio, but instead of being sent from that point to South Charleston found its way to Jackson and Ironton. Jackson and Ironton are located on the D., T. & I. and the latter point is a junction of that railroad and the N. & W. By a short route, the coal would have been delivered to the D., T. & I. at Ironton for that point and Jackson.

The rate on coal from Hardy, it was said, to the first junction and thence direct to Ironton over the D., T. & I. would be $1.15, while ton rates to South Charleston via the N. & W. to Glen Jean and thence via the D., T. & I., were $2.14. Of the $2.14 joint rate, the D., T. & I. would receive $1.01, it was alleged.

Smoke Abatement in New York

To decrease the smoke nuisance in the New York Metropolitan area an organization known as the New York and New Jersey Smoke Abatement Board has been formed. This board consists of five members from each state, and an executive committee of six, appointed by the State Chambers of Commerce of New York and New Jersey, under whose auspices the board was organized.

The chairman is Jacob H. Haffner, of the New York State Chamber of Commerce, and the secretary is Samuel G. Frantz, a consulting engineer. Also on the executive committee are J. Glenn Anderson, lawyer; J. Vipond Davies, consulting engineer; Harvey N. Davis, president of Stevens Institute of Technology, and Finley J. Shepard, railroad financier.

Other members are Laura A. Cauble, Dr. Thomas Darlington, former Health Commissioner of New York City, Julius Lichtenstein and Samuel H. Ordway, lawyers; R. J. S. Pigott of Stevens & Wood, consulting engineers; H. H. Sheldon, professor of Physics at New York

University; F. R. Wadleigh, consulting engineer, and Dr. Wade Wright, assistant medical director of the Metropolitan Life Insurance Company.

The work of the Board will be done by the following committees: Plan & Survey, Mr. Wadleigh; observation & co-operation, Mr. Pigott; ordinances, Mr. Lichtenstein; health, Dr. Wright.

Mr. Wadleigh is now making a survey of the fuel sources for the metropolitan area, especially coal. Railroads and state geologists are being asked to co-operate by furnishing information about coal and coal traffic in the various fields which supply or may supply the New York area. The observation and co-operation committee will try to secure abatement of smoke nuisances by amicable dealing with the owners of offending plants, believing that the "big stick" should be kept in the background until after co-operation has been tried. Committees of the American Society of Mechanical Engineers and of the Building Owners' and Managers' Association will help the board in this work. The ordinances committee will make a study of the relation of the law to smoke abatement, and will draw up a uniform ordinance for the municipalities in the area and work for its adoption. The health committee will investigate problems of the effect of smoke on health, and try to get the truth of the matter out of the many claims and opinions that have been expressed.

Supreme Court Settles Kansas City Grain-Rate Dispute

Interstate Commerce Commission's order of July 6, 1927, directed Atchison, T. & S. F. and two other railroads to cancel proposed tariff increasing grain rates from numerous country points in Colorado, Kansas and Nebraska to Kansas City, Mo., and Wichita, Kan. These railroads sued in the federal district court for northern Illinois to enjoin and annul the order, naming as defendants the United States, the Commission, the Kansas City Southern and certain other carriers which compete with the plaintiffs for the grain export traffic from Kansas City to Gulf ports. The district court, three judges sitting, denied the injunction and dismissed the bill.

On direct appeal, the supreme Court of the United States has affirmed that decree. In its opinion, it took a single increased rate from Kansas City of one carrier and showed its effect on one of its competitors for traffic from that market to a single Gulf port. Before 1924 the .K C. S. could compete on equal terms with the Santa Fe for the transportation to the Gulf of the grain from Dodge City on storage in Kansas City. In that year, the Santa Fe reduced its through rate from Dodge City to the Gulf via Kansas City to 47 cents. Thereby the Santa Fe's net proportional rate from Kansas City to the Gulf was reduced 4 cents, that is, from 30.5 cents to 26.5 cents. The K. C. S. has no line from Dodge City to Kansas City; its standard proportional rate is 30.5 cents. The K. C. S. was thus disabled from competing with the Santa Fe for the transportation from Kansas City to the Gulf of grain in storage at Kansas City which had come from Dodge City. For the Santa Fe refused to establish a similar through route via the K. C. S. from Kansas City and the Commission did not order it. The K. C. S. thereupon filed a varying proportional rate by lowering to 26.5 its own rate from Kansas City to the Gulf on such grain as had come to Kansas City from Dodge City. The Santa Fe protested to the Commission, but the Commission refused to suspend the rate. The Santa Fe then, to exclude the K. C. S. filed the tariff in question, imposing the 4-cent addition to its Kansas City rate on any Dodge City grain that should later be reshipped over the K. C. S. line. It was this conditional addition of 4 cents to the Dodge City-Kansas City rate which the Commission ordered cancelled.

The Supreme Court says that, even if this addition could be called proportional; "The Commission's power to declare rates unreasonable applies alike to all rates, be they joint, local, or proportional. The Commission may and often does, deal with one factor only of the combination of rates which make up a through rate. And that factor may be a proportional rate." The grain, while in storage in Kansas City, was held to be, in every sense, free grain. "When delivered to elevators in Kansas City the Santa Fe's charges for the carriage to Kansas City were fully paid. Its legal interest therein ended then. . . . There is no rule of law or practice which gives to a carrier the right to recapture traffic which it originated. Moreover, here the competition is not for transportation of the identical merchandise." The action of the Commission in not suspending and ordering cancelled the K. C. S. varying proportional rate was not subject to review in the proceeding. Atchison, T. & S. F. v. United States et al. Decided June 3, 1929. Opinion by Mr. Justice Brandeis.

Supply Men Exhibit in Mexico City

In spite of the remoteness of Mexico City from the headquarters of most of the railway supply companies of the United States, some 19 companies joined with 6 from Mexico in the presentation of an exhibit of materials and devices employed in railway operation, in that city on June 4-7 in connection with the thirty-sixth annual convention of the American Association of Railroad Superintendents. Like the convention, the exhibits were presented in the National Palace.

This exhibit was presented by the Railway Equipment Manufacturers Association, of which C. M. Hoffman (Dearborn Chemical Co.) is chairman of the board; J. W. Fogg (McLean Fogg Lock Nut Co.), president; J. J. Cizek (The Leslie Co.), first vice president; J. Sinkler (Pilot Packing Co.), second vice president; M. K. Tate, (Lima Locomotive Co.), third vice president; Ralph F. Duysters, (Railway Age), fourth vice president; Fred W. Venton (Crane Co.) secretary treasurer and S. A. Witt (Detroit Lubricator Co.), W. C. Walsh (American Steel Foundries), Richard Welsh (Nathan Mfg. Co.), F. P. Roesch (Standard Stoker Co.), W. C. Sanders (Timken Roller Bearing Co.), S. J. Johnson (General Railway Signal Co.), H. W. Griffin (Union Switch and Signal Co.), and Bard Brown (Superheater Co.) members executive committee.

The names of the companies participating in the exhibit, the nature of their exhibits and the names of their representatives follow:

Ashton Valve Co., Boston, Mass.; locomotive safety valves, air and steam gages, back pressure gages, dead weight tester; Joseph F. Gettrust.

Chicago Pneumatic Tool Co., New York; air compressor, riveting hammers and busters, paring breaker, and other air-operated tools; Fred Tyler W. E. Brooks.

Cia Unida de Ventassa—Dodge Bros., Mexico, D. F.; automobiles and trucks; P. Clifford, Jr.

Crane Co., Chicago; lavatory equipment, unions, pipe fittings, globe valves, water softener; Fred Venton, J. C. Cole, O. W. Johnson, H. G. Voegelin.

Dearborn Chemical Co., Chicago; wayside treating plants and chemicals used in treating water, No-Oxid treated steel; C. M. Hoffman, C. E. Baty, H. B. Crocker.

Detroit Lubricator Co., Detroit, Mich.; locomotive lubricator, flange oiler; S. A. Witt.

Drateln & Holste, Mexico, D. F.; models of rail fastening devices and charcoal iron tubes; Max von Drateln, Alexander Holste.

General Electric Co., Schenectady, N. Y.; floodlights, electric refrigerators; A. W. Felix.

General Supply Co., Mexico City, D. F.; welding wires and flood lights; W. C. Buchanan, F. M. McKee.

Locomotive Firebox Co., New York; working model of locomotive firebox equipped with syphon, moving pictures, literature; Robert A. Carr, Leslie R. Pyle, C. E. Baty.

Lunkenheimer Co., Cincinnati, Ohio; valves, grease and oil cups, lubricators; P. C. Hoseman.

McLean Fogg Lock Nut Co., Chicago; lock nuts and bolts, literature; J. W. Fogg.

F. W. Miller Heating Co., Chicago; blue prints and literature; Frank W. Miller.

W. H. Miner, Inc., Chicago; hand brake, models of side bearings, draft gear and yoke, literature; M. J. Mendez, S. T. Mendez.

Monterey Steel Works, Monterey, N. L., Mexico; sections of rails and steel shapes, bolts, spikes and washers.

National Aluminate Corp., Chicago; sodium aluminate, models of glass boilers, literature; P. Wilson Evans.

Pilliod Co., New York; J. Cooper, F. Pilliod, H. Pilliod.

Pyle-National Co., Chicago; floodlights, wiring appliances for cars, locomotives and shops, locomotive headlights and turbo-generators; W. M. Graves, Jr.

Railway Age, New York; E. T. Howson.

Robel & Co., Munich, Germany; rail saw, rail drill, expansion adjuster, dolly car; L. Struck.

S. K. F. Industries, Inc., New York; roller bearings, photos.

Standard Stoker Co., New York; models of stoker and coal pusher; Henry S. Mann, F. P. Roesch, W. H. Cooke.

Vacuum Oil Co., New York; lubricating oils; Samuel Ornelas, H. Huerta.

Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa.; flood lights and street lights; Wm. Rosplock, A. A. Tosi, Oscar O. Brun.

R. M. White and A. J. Hiern, Mexico, D. F.; shovels and scoops, manganese steel forgings; R. M. White, A. J. Hiern, R. E. Falkinberg.

NON EXHIBITING MEMBERS

Bradford Corporation, New York.
Franklin Railway Supply Co., New York.
General Railway Signal Co., Rochester, N. Y.
Lima Locomotive Works, Lima, Ohio.
Pilot Packing Co.
Superheater Company, New York.
Timken Roller Bearing Co., Canton, Ohio.
Union Switch & Signal Co., Swissvale, Pa.

The New York, Westchester & Boston (short electric subsidiary line of the New York, New Haven & Hartford) has announced tariffs, subject to approval of the New York State Public Service Commission, making increases of 5 to 25 per cent in passenger fares. The fare between New York City and White Plains, 19½ miles, would be increased from 35 to 40 cents; between New York and Rye, 19½ miles, 45 cents increased to 53 cents. The season ticket rates are not increased.

Traffic

The Traffic Club of Chicago, on June 10, unveiled a tablet inscribed with the name of Frank T. Bentley, who founded the club in 1907.

Major Neill E. Bailey, of the quartermaster corps of the Army, on June 6 became co-ordinator for traffic and chairman of the Federal Traffic Board, Washington, D. C., succeeding Capt. R. W. Schumann.

Major C. L. Hall, district engineer, U. S. Army, at Rock Island, Ill., is a member of the board of five engineers that has been appointed by the Secretary of War to make a survey of the Mississippi River, northward from St. Louis, with a view to estimating the cost of deepening the channel.

The Chicago, Milwaukee, St. Paul & Pacific, coincident with the placing of its Olympian on a 63-hour schedule between Chicago and Seattle, has changed the schedule of its Twin Cities and its Chicago Special, between Chicago and the Twin Cities, and has renamed both trains the "Bat." The trains leave at 11:30 p. m. and run through in 11 hours between Chicago and St. Paul.

President Hoover on June 6 signed the joint resolution passed by the House and Senate appropriating $39,000,000 and $3,997,098 plus unexpended balances of the previous appropriation of the Postoffice Department to make the retroactive payments due the railroads for mail transportation under decisions of the Interstate Commerce Commission which were sustained by the Court of Claims and the Supreme Court of the United States.

The Trans-Missouri-Kansas Shippers' Advisory Board will meet at Hutchinson, Kan. on June 19; the Central Western Shippers' Advisory Board at Kearney, Neb. on June 20; and the Pacific Coast Transportation Advisory Board at Sacramento, Cal. on June 21. At the Central Western meeting H. G. Taylor will speak on Transportation Conditions Throughout the United States. Governor A. J. Weaver of Nebraska will address the banquet session which is to be held on the evening of June 20. Samuel O. Dunn editor of the *Railway Age* will address the regular meeting during the morning session. N. A. Williams general manager of the Union Pacific and Byron Clark general solicitor of the Chicago, Burlington & Quincy will be the other speakers.

Air-Rail Passenger Service Popular

It is announced that the passenger route from New York to Los Angeles, by way of the Pennsylvania Railroad, the Transcontinental Air Transport and the Atchison, Topeka & Santa Fe, has already received about one thousand applications for passage on the first trip, which will be begun on July 7. The fare through is about $350. Only twenty persons can be accommodated on the first trip, and it is said that some of the applications are conditioned on being accepted for that trip.

P. R. R. Acquires Interest in Greyhound Lines

The Pennsylvania, on June 6, announced that it had acquired an interest in the Greyhound Lines, Inc., long distance motor coach operators, and that hereafter the highway system will be operated as an affiliated enterprise with the Pennsylvania Railroad.

Coast to Coast Rail and Air Over the N. Y. C.

Announcement is made that daily transcontinental rail, air and rail passenger service is to be begun at once between New York City and the Pacific Coast over the New York Central in conjunction with the Universal Aviation Corporation and the Atchison, Topeka & Santa Fe. The rate is given as $250. Passengers are to leave New York and Boston in the early evening, traveling by the Southwestern Limited to Cleveland, Ohio, where planes will be taken for the flight to Garden City, Kan., 1087 miles; at which point passengers will board the California Limited of the Atchison, Topeka & Santa Fe.

I. C. C. Declines to Re-Open Lake Cargo Case

The Interstate Commerce Commission on June 7 announced its denial of petitions filed by Ohio No. 8, Cambridge, Hocking, Crooksville and Shawnee coal district operators of the Western Pennsylvania Coal Traffic Bureau and the Wheeling & Lake Erie Railway, for a reopening and reconsideration of the lake cargo coal rate case, involving the relationship between the rates on lake cargo coal from the northern districts of Pennsylvania and Ohio and those from the southern districts of Virginia, West Virginia, Kentucky and Tennessee, to Lake Erie ports for trans-shipment. This leaves in effect the compromise tariffs established by the railways on January 1, providing a 35-cent differential in the northern rates under those from the southern field.

Faster Freight Schedules from California

Eastern and western railroads have so arranged their train schedules for fresh fruit and vegetable shipments from California to New York as to provide tenth morning delivery. The Erie and the Pennsylvania have established third morning delivery from St. Louis and Chicago to the Atlantic seaboard, while the Southern Pacific, the Atchison, Topeka & Santa Fe, the Union Pacific and the Western Pacific, have established a schedule of 146 hours to Chicago from California concentration points, including Roseville, Sacramento, Bakersfield, San Bernardino, and Colton. This schedule is based on a 3 a. m. departure and provides a seventh day connection at St. Louis and Chicago with the Erie and the Pennsylvania. Traffic originating within 16 hours of Sacramento, Bakersfield and Roseville and within seven hours of Colton and San Bernardino is operated on this schedule.

Chicago to Los Angeles, 24½ Hours

An air and rail passenger schedule of 24½ hours between Chicago and Los Angeles, Cal., by the use of railroad trains at night between Chicago and Kansas City, Mo., and airplanes during the day between Kansas City and Los Angeles, was inaugurated on June 1. The railroads operating between Chicago and Kansas City—the Atchison, Topeka & Santa Fe; the Chicago & Alton; the Chicago, Burlington & Quincy; the Chicago Milwaukee, St. Paul & Pacific and the Chicago, Rock Island & Pacific are participating in the sale of through tickets with the Western Air Express.

As an example of the service, passengers can leave Chicago by rail at 8 p. m., arriving at Kansas City at 8 the next morning, where automobile transportation is provided to the airport. The plane for Los Angeles will leave Kansas City at 8:30, arriving on the Pacific Coast at 6:30 p. m. Pacific time the same day. The planes, which will be 12-passenger trimotored Fokkers will make stops at Amarillo, Tex., Albuquerque, N. M., and Holbrook, Ariz. The fare for the entire journey will be $196.04, including $21.04 for rail and Pullman transportation and $175 for the air flight.

Joint Traffic Arrangements Between Rail and Barge Lines

The War Department on June 6 issued a statement saying that "great progress" had been made in negotiations between the Inland Waterways Corporation and the rail carriers relating to joint traffic arrangements between the rail and barge lines. Agreement had been reached, it was announced, that the application of the Denison amendment of the waterways act extends only to new routes and rates and divisions to be established, and does not affect existing routes, rates or divisions heretofore established by the Interstate Commerce Commission or by voluntary agreement. It was also stated that a general method of determining routes to be established under orders of the Commission was adopted; that the rail lines agreed to join with the Inland Waterways Corporation in an application for the fourth section relief necessary to carry into effect the orders of the commission; and that they had agreed to permit the waterways corporation to publish the joint tariffs until January 1, 1930, at which time, if the matter were still in dispute, a further conference would be held. The matter of divisions of accruing revenues for joint service was left for future consideration.

Equipment and Supplies

Locomotives

THE CANADIAN PACIFIC has ordered ten 4-6-4 type locomotives from the Montreal Locomotive Works. These locomotives will have 22-in. by 30-in. cylinders and a total weight in working order of 359,000 lb.

THE CROSSETT WESTERN has ordered one 2-8-2 type locomotive from the American Locomotive Company. This locomotive will have 18-in. by 24-in cylinders and a total weight in working order of 168,000 lb.

New York Central Buys 150 Locomotives

The New York Central has purchased from the American Locomotive Company, 150 locomotives at a cost of about $14,000,000. These locomotives will consist of 75 latest design Hudson (4-6-4) type passenger locomotives and 75 heavy duty Mohawk (4-8-2) type freight locomotives. The Hudson type locomotives will have 25 by 28 in. cylinders and a total weight in working order of 352,000 lb. The Mohawk type locomotives will have 27 by 30 in. cylinders and a total weight in working order of 365,000 lb. The New York Central purchased 100 of the freight type locomotives in December of last year, which are now being delivered. The new order of 150 locomotives will be assigned as follows:

	Passenger Locomotives	Freight Locomotives
New York Central....	50	50
Cleveland, Cincinnati, Chicago & St. Louis	10	25
Michigan Central	15	..
Total	75	75

The New York Central management said it feels that the prospects for future business, together with the economies which will be effected by the use of this more efficient motive power, fully justify this large expenditure for new locomotives at the present time. The road has an inquiry out for 25 eight-wheel switching locomotives for service on the Pittsburgh & Lake Erie.

Freight Cars

THE TEXAS COMPANY is inquiring for six gondola cars of 50 tons' capacity.

THE DONNER STEEL COMPANY, Buffalo, N. Y., is inquiring for 12 steel gondola cars of 50 tons' capacity.

THE UNITED STATES GOVERNMENT NAVY DEPARTMENT has ordered one steel underframe flat car of 40 tons' capacity, from the American Car & Foundry Company.

THE HIGH POINT, THOMASVILLE & DENTON has ordered 25 all-steel furniture box cars of 50 tons' capacity, from the Standard Steel Car Company.

THE BUFFALO & SUSQUEHANNA reported in the *Railway Age* of June 8, as contemplating the purchase of 200 all-steel cars of 55 tons' capacity is now inquiring for this equipment.

THE FRUIT GROWERS EXPRESS has ordered 172 steel underframes from the Ryan Car Company. Inquiry for this equipment was reported in the *Railway Age* of May 18.

Passenger Cars

THE PENNSYLVANIA is inquiring for 25 horse express cars.

THE MINNEAPOLIS & ST. PAUL is inquiring for three passenger, baggage and mail gas-electric rail motor cars.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered six dining cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of May 4.

THE NEW YORK, CHICAGO & ST LOUIS has ordered from the Pullman Car & Manufacturing Corporation the following:

8 coaches
5 baggage cars
3 dining cars
2 cafe coaches
2 baggage express cars
1 baggage and mail car

Inquiry for this equipment was reported in the *Railway Age* of April 20.

Iron and Steel

THE ERIE has ordered from the American Bridge Company 275 tons of steel for grade elimination work at Corning, N. Y.

THE UNION PACIFIC has ordered 450 tons of structural steel for a viaduct at Omaha, Neb., from the American Bridge Company.

THE CHESAPEAKE & OHIO has ordered 300 tons of structural steel for a bridge at Ceredo, W. Va., from the American Bridge Company.

THE NEW YORK CENTRAL has divided an order for 10,200 tons of heavy rail between the Illinois Steel Company and the Inland Steel Company. This rail is to be used on the Cleveland, Cincinnati, Chicago & St. Louis.

Machinery and Tools

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered one 8½-ton locomotive crane from the Orton Crane and Shovel Company.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for a 20-in. by 8-ft. motor-driven lathe, an upright drill with 36-in. table and a tool and cutter grinder.

THE DELAWARE, LACKAWANNA & WESTERN reported in the *Railway Age* of April 13 as inquiring for 46 machine tools has placed orders as follows:

6 electric hoists.....	Hoist & Crane Eng. Co.
1 electric floor grinder.	Stow Manufacturing Co.
3 engine lathes.....	Manning, Maxwell & Moore
1 quartering machine..	Manning, Maxwell & Moore
1 Micro internal grinding machine.....	Manning, Maxwell & Moore
1 54-in. horizontal milling machine.....	Ingersoll Milling M. Co.
1 48-in. radial drill....	Arch Machinery Co.
1 400-ton wheel press..	Chambersburg Eng. Co.
1 14-in. sensitive drill press	D. Nast Machinery Co.
1 16-in. double emery grinder	D. Nast Machinery Co.
1 portable cylinder joint facing machine....	D. Nast Machinery Co.
1 automatic turret lathe	Cleveland Aut. M.T.Co.
1 54-in. turret lathe...	Bullard Mach. Tool Co.
1 2¼-in. turret lathe..	Warner & Swasey Co.
1 plain milling machine	Kearny & Trecker
1 24-in. vertical drill..	Consol. Mach. T. Co.
1 No. 2 pipe cutter...	Landis Mach. Tool Co.
1 2-in. bolt pointer...	Van Dycke Churchill Co.
1 2-in. forging machine	National Machinery Co.
1 axle roughing lathe..	Niles-Bement-Pond Co.
1 hot saw	Ajax Manufacturing Co.
1 16-in. wet and dry grinder	Knickerbocker Crane Co.
1 32-in. pipe shaper...	Swind Machinery Co.
1 2¼-in. turret lathe..	Van Dycke Churchill Co.
1 2-in. double bolt cutter	Madison Machine Co.

Signaling

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered from the Union Switch & Signal Company, 42 color-light signals, and other material, for installation at various points on its Illinois division.

THE MISSOURI-KANSAS-TEXAS has ordered from the Union Switch & Signal Company, material for the installation of automatic block signals on its line between Paola, Kan., and Centerville, 27 miles. Color-light signals will be used.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company 151 position-light signals preparatory to installing the automatic block system on its freight line from Enola, near Harrisburg, Pa., eastward to West Morrisville, Pa., near Trenton, N. J., 114 miles double track.

Package Cars from Chicago

For the fourth consecutive month this year, fast freight shipments from Chicago during April broke all previous records for prompt delivery, according to the transportation department of the Chicago Association of Commerce. Of the 58,748 package cars reported during the month, 55,139 reached destination on schedule, making an "on time" record of 93.86 per cent, compared with a showing of 88.53 per cent during the same period a year ago.

The steady improvement is indicated in the small number of late arrivals. Only 2,826 cars, or 4.81 per cent, were one day late, while those reaching delivery points two days late or longer totaled only 783, or 1.33 per cent.

The combined record for the first four months this year, according to the Association of Commerce study, shows that of the 222,024 package cars reported from Chicago, 198,710 were on time, or a performance record of 89.62 per cent.

Supply Trade

C. A. Anderson has been appointed sales manager of the **Ford Chain Block Company**, Philadelphia, Pa.

The Stuebing Cowan Company, Cincinnati, Ohio, is constructing a one-story 160-ft. by 330-ft. plant with a two-story office building at Cincinnati, to cost $200,000.

The Pennsylvania Pump and Compressor Company, Easton, Pa., has appointed **Wells, Fargo & Co.,** Mexico City, D. F., as its agent for the Republic of Mexico.

P. S. Nash, service engineer for the **Union Asbestos & Rubber Company,** with headquarters at Salt Lake City, Utah, has been appointed western representative, with headquarters at San Francisco, Cal.

The Chicago office of the **American Hoist & Derrick Company,** has been moved from the Fisher building to the Engineering building at 205 W. Wacker Drive and the Pittsburgh branch is now located in the Farmers Bank building instead of in the Chamber of Commerce building.

S. Howard Eisenberg has been appointed district representative for Colorado, Wyoming and New Mexico for the **Foote Bros. Gear and Machine Company** with headquarters at 2812 Ash street, Denver, Colo. A western sales office has been established at 1855 Industrial street, Los Angeles, Cal.

The Appleton Electric Company, Chicago, has bought the Gem Powerlet line of conduit fittings from the Jefferson Electric Company, formerly the Chicago-Jefferson Fuse & Electric Company.

The Linde Air Products Company, New York, has opened a new Linde oxygen producing plant at 1000 W. Washington avenue, Oklahoma City, Okla. **F. K. Buckalew** is superintendent of the new plant, and **A. B. Curtis,** whose headquarters are at Dallas, Texas, is district superintendent.

W. B. Murray, who has been chief engineer of the Miller Automatic Train Control Corporation for the past 20 years has resigned to organize the **W. B. Murray Company,** of which he is president, to market the products of the former company in Ohio, Indiana, Illinois, Michigan, Missouri, Wisconsin and Minnesota. The offices of the W. B. Murray Company are located at 1205 Chicago Motor Club Building, Chicago. Mr. Murray will devote a large part of his time to the sales and engineering of "Trasilator," which is an adaptation of inductive train control principles and equipment for controlling traffic lights and checking the speed of cars.

J. E. Forsyth, who has been elected president of the **Forsyth Draft Gear Corporation,** Chicago, has been engaged in the railway supply field for 42 years. He was born in 1852 at Jackson Center, Ohio, and at the age of 18 started to learn the jeweler's trade. In 1879 he entered the furniture business with his father at Sidney, Ohio. In 1887 Mr. Forsyth organized the Hinson Car Coupler Company (now part of the Harrison Steel Casting Company) at Des Moines, Iowa, moving the company to Chicago in the following year. He organized the Forsyth Automatic Connector Company, of which he is president in 1902. In 1927 Mr. Forsyth organized the Forsyth Draft Gear Corporation, serving as consulting engineer until his recent election to president.

J. E. Forsyth

J. C. Clark has been appointed group supervisor at large by the Equitable Life Assurance Society of the United States and, through the pensions and annuities division, will specialize on railroad pension and group insurance plans. Mr. Clark was with the Oregon Short Line unit of the Union Pacific System from 1904 to 1921 as brakeman, conductor, and assistant to the general manager. From October, 1921, to April, 1924, he was a partner in the stock and bond brokerage firm of J. A. Hagle & Co., of Salt Lake City. In May, 1924, he was appointed director of the railroad sales department of the Kardex Company, with headquarters at Tonawanda, New York. In June, 1925, Mr. Clark became a member of the staff of Industrial Relations Counselors, New York, specializing in railroad personnel work. In August, 1927, he was appointed a special assistant to the vice-chairman of the executive committee of the Southern Pacific to do special work in connection with that company's pension plan and has continued in that capacity until his present appointment. Mr. Clark has been a student of railroad personnel problems for many years and has frequently contributed articles to the *Railway Age* on this question.

J. C. Clark

J. S. Tritle, in charge of manufacturing operations of the **Westinghouse Electric & Manufacturing Company** has been elected a vice-president with headquarters at East Pittsburgh, Pa. Mr. Tritle was born at Virginia City, Nev., in 1872 and was graduated from Yale University in 1893 with a degree in science. He has been in the electrical industry since 1893. In 1895 he entered the electrical engineering contracting business, in which he continued for eight years. At the outset of the St. Louis World's Fair, he served as chief of construction and at the close of the fair, he was made manager of the Kansas City district for the Westinghouse Company. In 1915 the St. Louis and Kansas City offices were consolidated and Mr. Tritle assumed charge of both. In 1922 he was made manager of the merchandising department, listed under the general sales department of the organization. In 1925, when a separate division was made of the merchandising business, Mr. Tritle was made general manager of the merchandising department with headquarters at Mansfield, Ohio, overseeing engineering and manufacturing as well as sales work. On May 1, 1929, he assumed responsibility for manufacturing operations of the entire company.

J. S. Tritle

Construction

BETHLEHEM STEEL CORPORATION.—A contract has been let to the Roberts and Schaefer Company, Chicago, for the construction of a reinforced concrete coaling station of 200-ton capacity at Johnstown, Pa. This installation will include a 100-ton gravity sand handling plant.

BOSTON & MAINE-DELAWARE & HUDSON. —These companies plan the reconstruction of the existing highway structure carrying their tracks over the country highway in the town of Clifton Park, N. Y., at an estimated cost of $59,000.

CANADIAN NATIONAL—A contract for the construction of a coaling station of 300 tons' capacity at Carrick, Man., has been let to the Claydon Company, Winnipeg, Man.

CANADIAN PACIFIC.—A contract has been let to Moncrieff & Vistaunet, Vancouver, B. C., for the construction of a freight shed at Pender and Abbott streets, Vancouver, at a cost of about $90,000.

ERIE.—This company will receive bids until June 17 for work in connection with the reconstruction of its shops at Susquehanna, Pa., which will include the rebuilding of several existing units and the construction of additional buildings. The cost of this project together with equipment was estimated in the road's 1929 budget plan to entail an expenditure of $378,000. A contract has been awarded to Brooks Brothers, Paterson, N. J., for the construction of an overhead bridge, and approaches, to eliminate a highway grade crossing on the company's lines at Madison avenue in Paterson, N. J.

GALVESTON WHARF COMPANY.—This company plans the construction of a reinforced concrete elevator at shipside at Galveston, Tex., for the handling of export grain. The elevator will have a storage capacity, including the present concrete tanks, of 5,864,000 bu. and a handling capacity of 320 cars per 10-hr. day. Equipment to be installed will include 11 scales of 25,000-bu. capacity, three direct heat type drying units of 1,000-bu. capacity and a dust collecting system and clipping machinery.

LONG ISLAND.—This company plans the erection of a new passenger station and overhead pedestrian crossing to be located on its line between Valley Stream and Malverne, L. I. Plans for the new building have been approved by the New York Public Service Commission.

MAYO & COOK'S HAMMOCK.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Mayo to Cook's Hammock, Fla., 13 miles. The application was filed by F. C. Hillyer, Jacksonville, Fla., as one of the organizers.

NEW YORK CENTRAL.—This company is receiving bids until June 18, on work in connection with the construction of a new automobile storage warehouse between Sixty-fifth and Sixty-sixth streets in West End avenue, New York. The excavation work on the project is being completed by the Culsher Construction Company, New York and the architect is Frank S. Parker, New York. Bids also are being received for the construction of additions to the company's shops at Harmon, N. Y., which it has been estimated will cost about $600,000.

NEW YORK, NEW HAVEN & HARTFORD.—This company has awarded a contract to C. W. Blakeslee & Sons, New Haven, Conn., for the widening of Sound Beach underpass on its lines in Greenwich, Ct. The project will cost $100,000, of which 25 per cent will be assumed by the railroad.

SOUTHERN (Cincinnati, New Orleans & Texas Pacific).—This company closes bids on June 17 for the construction of second main track between Rogers Gap, Ky., and Lexington, 19.6 miles. The work to be done under contract includes grading and the construction of concrete structures and pipe culverts.

Trade Publications

Servicized Products—In a bulletin of 28 pages issued by the Servicized Products Corporation, Chicago, detailed information is given concerning the various bitumen products manufactured by this company. These include water proofing materials, asphalt planking, grade crossing pavements, roofing, etc. The nature of the materials is outlined in the text and numerous photographs illustrate the various applications.

UNDERDRAINAGE.—The Toncon Culvert Manufacturers Association, Massillon, Ohio, has published a 20-page booklet on subdrainage with particular reference to the use of perforated corrugated pipe. The treatment is one that gives the reader the pertinent facts in the fewest words. The arrangement is logical. Commencing with rainfall and run-off, there is a discussion of the flow of water in the ground, formulas and tables for flow through pipe and separate short chapters on the drainage of tracks, highways, air ports, etc.

GLASS.—The Mississippi Glass Company, 220 Fifth avenue, New York, describes in an attractive 64-page illustrated catalogue, entitled "Glass by Mississippi," polished wire, figured wire, polished figured and plain figured glass. Chapters are devoted to a discussion of illumination in modern industrial buildings, information on glazing, the importance of wire glass in fire protection, etc. A brief history of the development of glass in the United States is contained in the story of the Mississippi Glass Company. A list of Mississippi products gives thicknesses, maximum sizes and approximate weights of wire glass and figured glass.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Lease.*—The Interstate Commerce Commission has authorized this company to acquire control by lease of the property of the Kansas City, Mexico & Orient and the Panhandle & Santa Fe to acquire control by lease of the property of the K. C. M. & O. of Texas. The Panhandle & Santa Fe also was authorized to operate, under trackage rights, over the line of the Orient in Jackson county, Okla., 13 miles.

BALTIMORE & OHIO. —*Stock.*—The Interstate Commerce Commission has authorized this company to issue $41,107,700 of common stock—$100 par—to be sold at not less than par and the proceeds used to reimburse the treasury for capital expenditures made and in prospect.

BALTIMORE & OHIO.—*Acquisition of B. R. & P.*—The Baltimore & Ohio has applied to the Interstate Commerce Commission for authority to acquire control of the Buffalo, Rochester & Pittsburgh by purchase of about 80 per cent of its outstanding stock from the Allegheny Corporation for $14,263,216, under an agreement with that corporation which is subject to approval by the commission. It is proposed to acquire 43,024 shares of 6 per cent non-cumulative preferred stock out of a total of 60,000 shares outstanding, and 96,927 shares of common stock, out of a total of 105,000 shares outstanding. The B. R. & P. was included in the list of roads which the Baltimore & Ohio desires to include in its system in the general unification application filed in February but although that application referred to the close relations which had existed between the two companies for 30 years nothing was said about an actual agreement to purchase. The agreement is dated March 1. Importance of the B. R. & P. as a link in the Baltimore & Ohio's proposed new short route between Chicago and New York and New England is mentioned in the application among the advantages to be derived from the acquisition.

BOSTON & MAINE. —*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $1,710,000 of 5 per cent equipment trust No. 5 certificates. The issue will mature from 1930 to 1944 and will be sold at 98.52 to Brown Brothers & Company and Evans, Stillman & Co., making the average annual cost to the railroad 5.24 per cent.

CHICAGO & EASTERN ILLINOIS.—*New Director Elected.*—Robert A. Drysdale, of Benedict, Drysdale & Co., New York, has been elected a director of this company to succeed Edward Shearson, resigned.

DENVER & SALT LAKE.—*Operating Contract.*— The Interstate Commerce Commission has extended for sixty days from June 15 the time within which this com-

(*Continued on page 1397*)

Annual Report

Missouri-Kansas-Texas Railroad Company

and Controlled Companies

Annual Report for the Year Ended December 31, 1928

ST. LOUIS, MO., April 17, 1929.

TO THE STOCKHOLDERS:

The Board of Directors submits herewith a report of the operations and affairs for the year ended December 31, 1928.

A summary of results of operation compared with the year 1927 is as follows:

Missouri-Kansas-Texas Lines Income Account Year Ended December 31, 1928, Compared with Year Ended December 31, 1927

	1928 Amount	1927 Amount	Increase or Decrease
Average Mileage Operated..	3,188.54	3,188.54	
OPERATING REVENUES:			
Freight	$45,262,652.73	$43,961,759.91	+$1,300,892.82
Passenger	6,767,528.93	7,812,203.39	—1,044,674.46
Mail	1,201,406.65	1,116,558.05	+84,848.60
Express	1,824,972.93	1,790,566.06	+34,406.87
Miscellaneous	842,687.88	822,602.96	+20,084.92
Incidental	614,349.33	636,563.06	—22,213.73
Joint Facility	35,519.97	41,274.54	—5,754.57
Total Operating Revenues	$56,549,118.42	$56,181,527.97	+$367,590.45
OPERATING EXPENSES:			
Maintenance of Way and Structures	$7,861,519.94	$8,240,609.29	—$379,089.35
Maintenance of Equipment	10,143,557.86	10,398,911.11	—255,353.25
Traffic Expenses	1,379,157.80	1,390,797.22	—11,639.42
Transportation Expenses	16,920,528.89	17,271,332.46	—350,803.57
Miscellaneous Operations	371,748.18	385,262.35	—13,514.17
General Expenses	2,447,446.70	1,940,696.83	+506,749.87
Transportation for Investment—Cr.	190,143.48	288,435.56	+98,292.08
Total Operating Expenses	$38,933,815.89	$39,339,173.70	—$405,357.81
Net Operating Revenue	$17,615,302.53	$16,842,354.27	+$772,948.26
RAILWAY TAX ACCRUALS	$3,074,029.43	$3,131,779.10	—$57,749.67
UNCOLLECTIBLE RAILWAY REVENUES	17,357.75	16,572.54	+785.21
Total	$3,091,387.18	$3,148,351.64	—$56,964.46
Operating Income	$14,523,915.35	$13,694,002.63	+$829,912.72
OTHER OPERATING INCOME:			
Rent from Locomotives	$171,703.86	$50,366.62	+$121,337.24
Rent from Passenger Train Cars	160,884.73	134,937.07	+25,947.66
Rent from Work Equipment	17,818.52	24,917.82	—7,099.30
Joint Facility Rent Income	183,588.73	169,119.86	+14,468.87
Total Other Operating Income	$533,995.84	$379,341.37	+$154,654.47
Total Operating Income	$15,057,911.19	$14,073,344.00	+$984,567.19
DEDUCTIONS FROM OPERATING INCOME:	1928 Amount	1927 Amount	Increase or decrease
Hire of Freight Cars—Debit Balance	$1,836,752.02	$1,349,990.18	+$486,761.84
Rent for Locomotives	40,331.83	35,889.85	+4,441.98
Rent for Passenger Train Cars	111,473.80	78,765.87	+32,707.93
Rent for Work Equipment	55,881.23	49,490.27	+6,390.96
Joint Facility Rents	809,000.95	859,234.69	—50,233.74
Total Deductions from Operating Income	$2,853,439.83	$2,373,370.86	+$480,068.97
Net Railway Operating Income	$12,204,471.36	$11,699,973.14	+$504,498.22
NON-OPERATING INCOME:			
Income from Lease of Road	$139,862.86	$113,991.72	+$25,871.14
Miscellaneous Rent Income	153,946.00	147,542.62	+6,403.38
Miscellaneous Non-Operating Physical Property	15,412.04	*4,921.33*	+20,333.37
Dividend Income	360.00	.....	+360.00
Income from Funded Securities	83,768.45	89,729.57	—5,961.12
Income from Unfunded Securities and Accounts	542,143.49	564,395.55	—22,252.06
Miscellaneous Income	3,272.23	3,068.87	+203.36
Total Non-Operating Income	$938,765.07	$913,807.00	+$24,958.07
Gross Income	$13,143,236.43	$12,613,780.14	+$529,456.29
DEDUCTIONS FROM GROSS INCOME:			
Rent for Leased Roads	$7,698.53	$7,680.85	+$17.68
Miscellaneous Rents	1,854.40	1,617.94	+236.46
Miscellaneous Tax Accruals	12,768.34	14,196.86	—1,428.52
Interest on Unfunded Debt	42,638.87	87,874.38	—45,235.51
Miscellaneous Income Charges	860.80	507.08	+353.72
Total Deductions from Gross Income	$65,820.94	$111,877.11	—$46,056.17
Balance Available for Interest	$13,077,415.49	$12,501,903.03	+$575,512.46
Fixed Interest Charges	4,255,600.62	4,374,464.08	—118,863.46
Balance Available for Interest on Adjustment Bonds	$8,821,814.87	$8,127,438.95	+$694,375.92
Interest on Adjustment Bonds	1,325,551.68	2,132,629.28	—807,077.60
Net Income	$7,496,263.19	$5,994,809.67	+$1,501,453.52

Italics denote Debit.

Financial

Preferred Stock, Series "A," increased during the year by $13,756,400.00 for conversion of a similar amount of Adjustment Mortgage 5%, Series "A" Bonds. Bonds and Certificates of Deposit on foreclosed Mortgage Bonds were converted during the year into Preferred Stock, Series "A," amounting to $21,429.88, and Common Stock (no par value) amounting to $2,975.53, represented by 36.1021 shares, which had been reserved for this purpose under the plan of reorganization, leaving Preferred Stock amounting to $71,292.67 and Common Stock (no par value) amounting to $51,483.41, represented by 624.647 shares reserved for similar future conversions. This "stock liability for conversion" is now carried separately in the balance sheet to comply with the regulations of the Interstate Commerce Commission.

Long Term Debt decreased $13,146,077.50, of which $13,756,400.00 is represented by Adjustment Mortgage 5%, Series "A" Bonds converted into Preferred Stock, Series "A," $95,100.00 represented by underlying Bonds and Equipment Notes left undisturbed in the reorganization, paid and retired during the year and $12,894,577.50 Prior Lien Mortgage 6% Gold Bonds, Series "C," called for redemption on February 1, 1928. New Prior Lien Mortgage 4½%, Gold Bonds, Series "D," amounting to $13,600,000.00, were issued and sold during the year.

Dividends were declared during the year at the rate of 7% per annum on Preferred Stock, Series "A," outstanding in the hands of the public.

The Company withdrew its application to the Interstate Commerce Commission to acquire control through stock ownership of St. Louis Southwestern Railway Company and/or The Kansas City Southern Railway Company, and thereupon the latter company repaid with interest the $7,000,000.00 which your Company had advanced to it in part payment for the stock of St. Louis Southwestern Railway Company under the terms of the agreement referred to in the report of the year 1926. All rights of your Company to acquire stock of St. Louis Southwestern Railway Company from The Kansas City Southern Railway Company have ceased and terminated.

Operation

There was no change in the operated mileage, December 31, 1928, as compared with December 31, 1927, it being 3,188.54 miles on both dates.

Freight Revenues in 1928 were $1,300,892.82 more than in 1927, or 2.96%, due principally to heavier movement of wheat, corn, crude and refined petroleum, automobiles and other manufactures and miscellaneous freight. Passenger revenues decreased $1,044,674.46, or 13.37%, due to continued diversion of short haul business to busses and automobiles.

Except for interruptions caused by high water, in Missouri and Kansas during November, train operation, both freight and passenger, was generally satisfactory throughout the year.

The property, including roadway, structures and rolling stock, has been maintained in good condition.

[ADVERTISEMENT]

Industrial Development

Industrial development during the year has been marked by an unusual number of new plants located on the rails of your company. 248 new industries were established, representing an investment of approximately $17,000,000, and producing a traffic movement estimated at 17,000 cars of freight per annum.

Federal Valuation

It is expected that a final value upon the property of your Company will be served by the Interstate Commerce Commission during the year 1929. The cost of your Company's valuation work to the end of 1928 aggregated $1,544,967.66.

C. HAILE, President.

Missouri-Kansas-Texas Lines—Consolidated General Balance Sheet

Assets

	December 31, 1928	December 31, 1927	+ Increase — Decrease
INVESTMENTS:			
Investment in Road and Equipment:			
Road	$235,401,257.04	$233,073,527.57	+$2,327,729.47
Equipment	52,906,033.90	53,157,729.34	—251,695.44
	$288,307,290.94	$286,231,256.91	+$2,076,034.03
Improvements on Leased Railway Property	$9,146.61	$9,746.24	—$599.63
Deposits in Lieu of Mortgaged Property Sold	212.50	202.48	+10.02
Miscellaneous Physical Property	1,119,754.73	1,059,999.58	+59,755.15
Investments in Affiliated Companies—Pledged	527,000.00	527,000.00	
Investments in Affiliated Companies—Unpledged	816,559.83	867,905.79	—51,345.96
Investment in Securities Issued, Assumed or Otherwise carried as a Liability by the Accounting Company		38,416.00	—38,416.00
Other Investments:			
United States Government Securities	4,023,664.57	1,141,988.1[illegible]	+2,881,676.43
Other Securities	665,221.74	647,035.60	+18,186.14
TOTAL INVESTMENTS	$295,468,850.92	$290,523,550.74	+$4,945,300.18
CURRENT ASSETS:			
Cash	$2,672,349.31	$2,917,349.64	—$245,000.33
Time Drafts and Deposits	7,290,917.84		+7,290,917.84
Special Deposits:			
Against Purchase of Securities		7,000,000.00	—7,000,000.00
Other Special Deposits	98,614.52	7,252.02	+91,362.50
Loans and Bills Receivable:			
Time Loans	1,100,000.00		+1,100,000.00
Other Bills Receivable	33,787.85	21,237.02	+12,550.83
Traffic and Car Service Balances Receivable	1,000,821.42	753,568.89	+247,252.53
Net Balance Receivable from Agents and Conductors	874,536.33	846,082.05	+28,454.28
Miscellaneous Accounts Receivable	1,211,595.65	1,206,186.90	+5,408.75
Material and Supplies	5,518,809.76	6,350,302.38	—831,492.62
Interest and Dividends Receivable	56,530.07	538,215.66	—481,685.59
Other Current Assets	53,926.73	46,578.30	+7,348.43
TOTAL CURRENT ASSETS	$19,911,889.48	$19,686,772.86	+$225,116.62
DEFERRED ASSETS:			
Working Fund Advances	$87,326.59	$25,637.86	+$61,688.73
Other Deferred Assets	3.00	2,002.00	—1,999.00
TOTAL DEFERRED ASSETS	$87,329.59	$27,639.86	+$59,689.73
UNADJUSTED DEBITS:			
Rents and Insurance Premiums Paid in Advance	$93,237.22	$97,583.57	—$4,346.35
Other Unadjusted Debits	371,021.71	255,577.71	+115,444.00
TOTAL UNADJUSTED DEBITS	$464,258.93	$353,161.28	+$111,097.65
TOTAL	$315,932,328.92	$310,591,124.74	+$5,341,204.18
The following Assets not included in Balance Sheet Accounts:			
Securities in Course of Acquisition		$6,613,301.00	—$6,613,301.00
Securities held for Exchange of Underlying Securities:			
Long Term Debt	$31,989,800.00	32,038,800.00	—49,000.00
Securities Issued or Assumed—Unpledged:			
Preferred Stock	5,529,477.45	5,529,477.45	
Common Stock	15,732,350.28	15,732,350.28	
Long Term Debt	11,389,905.46	17,785,874.96	—6,395,969.50

NOTE.—Intercorporate Assets and Liabilities are excluded.

Liabilities

	December 31, 1928	December 31, 1927	+ Increase — Decrease
STOCK:			
CAPITAL STOCK:			
Preferred (Par value, $100.00 per share.)	$59,569,729.88	$45,884,622.55	+$13,685,107.33
Common (No par value. See note.)	66,636,166.31	66,687,649.72	—51,483.41
STOCK LIABILITY FOR CONVERSION:			
Preferred (Par value $100.00 per share.)	71,292.67		+71,292.67
Common (No par value. See note.)	51,483.41		+51,483.41
TOTAL STOCK	$126,328,672.27	$112,572,272.27	+$13,756,400.00
LONG TERM DEBT:			
Mortgage Bonds	$93,226,179.30	$92,531,756.80	+$694,422.50
Equipment Trust Obligations	588,700.00	672,800.00	—84,100.00
Income Mortgage Bonds	20,639,167.24	34,395,567.24	—13,756,400.00
TOTAL LONG TERM DEBT	$114,454,046.54	$127,600,124.04	—$13,146,077.50
CURRENT LIABILITIES:			
Traffic and Car Service Balances Payable	$1,142,273.52	$1,076,636.36	+$65,637.16
Audited Accounts and Wages Payable	3,988,819.40	4,126,281.50	—137,462.10
Miscellaneous Accounts Payable	140,893.10	154,023.60	—13,130.50
Interest Matured Unpaid	1,673,898.87	1,818,259.19	—144,360.32
Dividends Matured Unpaid	18,113.13	17,073.75	+1,039.38
Funded Debt Matured Unpaid	88,375.00		+88,375.00
Unmatured Interest Accrued	639,674.27	986,429.51	—346,755.24
Unmatured Rents Accrued	211,586.84	170,993.18	+40,593.66
Other Current Liabilities	172,266.98	161,870.96	+10,396.02
TOTAL CURRENT LIABILITIES	$8,075,901.11	$8,511,568.05	—$435,666.94
DEFERRED LIABILITIES:			
Other Deferred Liabilities	$71,213.82	$125,050.63	—$53,836.81
UNADJUSTED CREDITS:			
Tax Liability	$2,155,060.14	$2,291,833.96	—$136,773.82
Accrued Depreciation—Equipment	9,960,834.71	8,003,149.19	+1,957,685.52
Other Unadjusted Credits	1,716,219.24	1,361,024.49	+355,194.75
Reorganization Suspense	29,765,949.01	29,537,344.46	+228,604.55
TOTAL UNADJUSTED CREDITS	$43,598,063.10	$41,193,352.10	+$2,404,711.00
CORPORATE SURPLUS:			
Additions to Property through Income and Surplus	$57,604.15	$45,472.67	+$12,131.48
Profit and Loss—Balance	23,346,827.93	20,543,284.98	+2,803,542.95
TOTAL CORPORATE SURPLUS	$23,404,432.08	$20,588,757.65	+$2,815,674.43
TOTAL	$315,932,328.92	$310,591,124.74	+$5,341,204.18
The following Liabilities not included in Balance Sheet Accounts:			
Liability for Securities in Course of Acquisition		$6,613,301.00	—$6,613,301.00
Securities held for Exchange of Underlying Securities:			
Long Term Debt	$31,989,800.00	32,038,800.00	—49,000.00
Securities held by or for the Company:			
Preferred Stock	5,529,477.45	5,529,477.45	
Common Stock	15,732,350.28	15,732,350.28	
Long Term Debt	11,389,905.46	17,785,874.96	—6,395,969.50

The Company is guarantor, jointly with other Companies, of the securities of certain terminal companies, none of which is in default.

NOTE:

There were 808,495.1021 shares Common Stock outstanding in hands of the public on December 31, 1928, a decrease of 624.647 shares which are now represented by Stock Liability for Conversion.

[ADVERTISEMENT]

Financial News

(*Continued from page 1394*)

pany and the Denver & Salt Lake Western shall file a draft of the operating contract relative to the operation of the Dotsero cut-off.

ILLINOIS CENTRAL. — *Operation by Y. & M. V. over Vicksburg Bridge.*—The Interstate Commerce Commission has authorized the Yazoo & Mississippi Valley to operate over the bridge between Delta, La., and Vicksburg, Miss., 7,484 ft., and to discontinue the use of transfer boats operated by the Louisiana & Mississippi River Railroad Transfer Company betweenthese points. It is expected that the new bridge will be completed for operation by January 1, 1930.

LONG ISLAND. — *Annual Report.* — The annual report of this company for 1928 shows net income after interest and other charges of $4,682,656, as compared with net income of $3,273,272 in 1927. Selected items from the income statement follow:

LONG ISLAND

	1928	1927	Increase or Decrease
Average mileage operated	404.11	403.95	0.16
RAILWAY OPERATING REVENUES	40,532,572	40,886,581	—354,009
Maintenance of way	5,281,376	5,510,801	—229,425
Maintenance of equipment	5,649,517	6,271,392	—621,874
Transporta'n	16,117,641	16,807,793	—690,152
TOTAL OPERATING EXPENSES	28,434,357	30,111,966	—1,677,609
Operating ratio	76.8	79.7	—2.9
NET REVENUE FROM OPERATIONS	12,098,215	10,774,615	1,323,600
Railway tax accruals ...	2,688,837	2,472,139	216,697
Railway operating income ..	9,390,508	8,256,197	1,134,311
Hire of equipment—Dr.	510,563	822,541	—311,979
Joint facility rents—Dr.	1,337,487	1,271,077	66,410
NET RAILWAY OPERATING INCOME	7,542,459	6,162,578	1,379,880
Non-operating income ...	834,258	773,232	61,026
GROSS INCOME.	8,376,717	6,935,810	1,440,907
Rent for leased roads	60,000	60,001	—1
Interest on funded debt	3,250,133	3,177,961	72,172
TOTAL DEDUCTIONS FROM GROSS INCOME	3,694,061	3,662,539	31,522
NET INCOME..	4,682,656	3,273,272	1,409,384
Disposition of net income: Income applied to sinking and other reserve funds	920	752	168
Dividend appropriation of income (6 per cent)	2,399,640	1,364,410	1,035,398
Surplus for year carried to profit and loss.....	2,282,096	1,908,110	373,986

LOUISIANA & ARKANSAS.—*Securities.*—The Interstate Commerce Commission has authorized this company to pledge and repledge $3,250,000 of first mortgage 5 per cent, series A, bonds as security for a loan evidenced by a note for $2,600,000.

MAINE CENTRAL.—*Securities.*—The Interstate Commerce Commission has authorized the Dexter & Piscataquis to issue $175,000 of 4½ per cent first mortgage bonds, to be sold at not less than 85 to retire maturing bonds and to issue short term notes for any amount not exceeding the discount on these bonds. In the event that a satisfactory market for the bonds is not found prior to July 1, then, pending the sale of the bonds, the company is authorized to issue $175,000 of short term notes pledging as security the bonds. The Maine Central, the lessor of this line, will guarantee principal and interest on the bonds.

NORTHERN & PACIFIC.—*Joint Operation with Soo Line.*—The Interstate Commerce Commission has authorized this company and the Minneapolis, St. Paul & Sault Ste. Marie to pool all ore shipped from that portion of the Cuyuna Range lying north of the former company's main line in Crow Wing County, Minn., and to pool coal shipments into these mines. The companies will operate jointly over each others tracks on the range, eliminating such trackage as will no longer be necessary in pooled operation. Revenues will not be pooled—tonnage only. The savings from the proposed joint operation are estimated at $350,000 per year.

PITTSBURGH & WEST VIRGINIA.—*Annual Report.*—The annual report of this company for 1928 shows a net income after interest and other charges of $2,037,471, as compared with net income in 1927 of $2,524,943. Selected items from the income statement follow:

PITTSBURGH & WEST VIRGINIA

	1928	1927	Increase or Decrease
Average mileage operated	92.34	92.34	.....
RAILWAY OPERATING REVENUES	4,473,023	4,011,616	461,407
Maintenance of way	298,483	264,511	33,972
Maintenance of equipment	881,049	733,564	147,485
Transport'n	818,317	830,855	—12,538
TOTAL OPERATING EXPENSES	2,554,354	2,413,547	140,807
Operating ratio	57.11	60.16	—3.05
NET REVENUE FROM OPERATIONS	1,918,669	1,598,069	320,600
Railway tax accruals ...	605,778	592,726	13,052
Railway operating income...	1,312,873	1,005,279	307,594
Hire of freight cars—Net	912,227	897,621	14,606
Joint facility rents—Net	10,872	10,865	7
NET RAILWAY OPERATING INCOME	2,218,718	1,906,221	312,497
Non-operating income ...	113,820	1,201,983	—88,163
GROSS INCOME.	2,332,538	3,108,204	—775,666
Interest on funded debt	171,545	190,725	—19,180
TOTAL DEDUCTIONS FROM GROSS INCOME	295,067	583,261	—288,194
NET INCOME...	2,037,471	2,524,943	—487,472

SEABOARD AIR LINES. — *Bonds.* — This company has applied to the Interstate Commerce Commission for authority to extend its $5,360,000 of Georgia, Carolina & Northern first-mortgage bonds for five years from July 1, with interest at 6 per cent instead of 5. It is stated that the company has entered into an agreement with Baker, Watts & Co., and the Mercantile Trust Company, of Baltimore, whereby the bankers agree to purchase from the holders all the bonds not agreed to be extended by the holders and to extend the bonds purchased.

SAN LUIS VALLEY SOUTHERN.—*Securities.*—The Interstate Commerce Commission has authorized this company to issue $155,450 of common stock, par value $10 a share, and $272,800 of income mortgage bonds, $75,450 of the stock and $227,200 of bonds to be delivered at par to the contractor for constructing an extension to the company's line and the remainder to be disposed of at not less than par and the proceeds used to defray other expenses. The extension in question will run from Jaraso, Colo., to Questa, N. M., 18 miles.

WHEELING & LAKE ERIE.—*Time for Disposition of Stock Extended.*—The Interstate Commerce Commission on June 11 announced a 30-day extension of the effective date of its order of March 11, in which it ordered the Baltimore & Ohio, New York Central and New York, Chicago & St. Louis to dispose of their stock in the Wheeling & Lake Erie within 90 days. The B. & O. and N. Y. C. had already disposed of their stock to the Allegheny Corporation and the Nickel Plate has applied to the commission for authority to acquire the stock held by the Allegheny Corporation, meanwhile asking for a stay of the commission's order.

Average Prices of Stocks and of Bonds

	June 11	Last week	Last year
Average price of 20 representative railway stocks.	134.37	136.61	116.89
Average price of 20 representative railway bonds..	90.33	90.26	93.88

Dividends Declared

Beech Creek.—$.50, quarterly, payable July 1 to holders of record June 14a.

Boston & Maine.—Prior Preferred, 1¾ per cent, quarterly; First Preferred, Class A, 1¼ per cent, quarterly; First Preferred, Class B, 2 per cent, quarterly; First Preferred, Class C, 1¾ per cent, quarterly; First Preferred, Class D, 2½ per cent, quarterly; First Preferred, Class E, 1⅝ per cent, quarterly; Six Per Cent Preferred, 1½ per cent, quarterly; all payable July 1 to holders of record June 14.

Lehigh Valley.—Common, $.87½, quarterly; Preferred, $1.25, quarterly; both payable July 1 to holders of record June 15.

Little Schuylkill Navigation, Railroad & Coal. —$1.13, payable July 15 to holders of record June 15 to July 15.

Morris & Essex.—$.75, payable July 1 to holders of record June 7a.

New York & Harlem.—Common and Preferred, $2.50, payable July 1 to holders of record June 14.

New York, Lackawanna & Western.—1¼ per cent, quarterly, payable July 1 to holders of record June 14.

Pittsburgh & West Virginia.—Common, 1½ per cent, quarterly, payable July 31 to holders of record July 15.

The Kansas wheat crop is expected to require 100,000 cars this year and from one half to two thirds of the movement will occur in July and August. On June 6 the railroads had already stored over 18,000 cars in Kansas and northern Oklahoma for loading. Of these the Atchison, Topeka & Sante Fe has 8,782, the Chicago, Rock Island & Pacific 6,220, the Missouri Pacific 1,292, the St. Louis-San Francisco 1,240 and the Missouri-Kansas-Texas 783.

Railway Officers

Executive and Legal

N. M. Rice, vice-president in charge of purchases and stores of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., has been granted an extended leave of absence.

H. B. Voorhees, general manager of the Western lines of the Baltimore & Ohio, with headquarters at Cincinnati, Ohio, has been elected vice-president of the Baltimore & Ohio System and president of the Baltimore & Ohio Chicago Terminal, with headquarters at Chicago, effective June 15. Mr. Voorhees succeeds **Frank C. Batchelder,** who retires on that date after nearly 56 years of railway service, 30 of which have been with the Baltimore & Ohio.

J. M. Condon, general manager of the New York district of the Erie, with headquarters at Jersey City, N. J., has been appointed assistant vice-president, with headquarters at New York. Mr. Condon was born on November 24, 1883, at Galion, O., and was educated in the high school in that city. He entered railway service in September, 1900, with the Cleveland, Cincinnati, Chicago & St. Louis and from April, 1901, until 1903, was in yard service on the Erie at Galion. From the latter date until 1905 he was night yardmaster and from 1905 until 1912 he was general yardmaster of the same road. He was in train service on the Southern Pacific and the Atchi-

J. M. Condon

son, Topeka & Santa Fe at Bakersfield, Cal., from 1912 to 1914, when he became general yardmaster of the Erie, at Marion, O. Mr. Condon was appointed inspector of transportation of the same road in April, 1916, and in September of that year he became trainmaster. He then served as assistant superintendent on the same road at Youngstown, O. He was later appointed superintendent of terminals at Jersey City, where he remained until May, 1920, at which time he was appointed superintendent of the New York division and Side Lines of the Erie. In June, 1921, he was also appointed superintendent of the New York, Susquehanna & Western (part of the Erie). Early in 1927, when the regions of the Erie were reorganized, Mr. Condon was appointed superintendent of the New York district, which position he held until September of that year when he was promoted to general manager.

C. A. Blood, who has been appointed assistant vice-president in the traffic department of the Lehigh Valley, with headquarters at New York, entered the service of the Lehigh Valley at Sayre, Pa., in 1877. He was appointed division freight agent at Pottsville, Pa., in 1890 and held that position until 1892, when

C. A. Blood

he became assistant to the general eastern freight agent at New York. From May, 1894, to May, 1895, he was division freight agent at Pottsville, then being transferred in the same capacity to Bethlehem, Pa. He also served in a similar capacity at Philadelphia from October, 1897, to February, 1898. On the latter date he was appointed assistant general freight agent with headquarters at New York and in January, 1904, he was promoted to general freight agent, serving in that position until April, 1906, when he became freight traffic manager. During federal control of the railroads, from January, 1918, to March, 1920, Mr. Blood was traffic manager of the Lehigh Valley, the New York, Susquehanna & Western and the Buffalo Creek. At the end of that period he was appointed traffic manager of the Lehigh Valley, serving continuously in that position until his recent appointment as assistant vice-president. Mr. Blood's entire railroad service has been with the Lehigh Valley.

L. B. da Ponte, acting western counsel of the Northern Pacific, has been promoted to western counsel, with headquarters as before at Seattle, Wash.

Operating

J. B. Earl, assistant superintendent on the Kenora division of the Canadian Pacific at Kenora, Ont., has been transferred to Ignace, Ont. **J. J. Horn,** superintendent of the Kenora division, with headquarters at Kenora, has been transferred to the Revelstoke division with headquarters at Revelstoke, B. C.

E. S. McCormick, assistant trainmaster on the Cleveland division of the Pennsylvania, has been promoted to trainmaster on the Akron division, succeeding **E. S. Reed,** who has been transferred to the Buffalo division. **J. L. Snyder,** yardmaster on the Eastern division, has been promoted to assistant trainmaster on the Renovo division at Kane, Pa., succeeding **P. C. Adams,** who has been transferred to the Cleveland division to replace Mr. McCormick.

C. W. Van Horn, general superintendent of transportation of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been promoted to general manager of the Western lines, with headquarters at Cincinnati, Ohio. **F. B. Mitchell,** general superintendent of the Southwest district, with headquarters at Cincinnati, has been transferred to the Northwest district, with headquarters at Cleveland, Ohio, succeeding **D. F. Stevens,** who has been promoted to general superintendent of transportation, with headquarters at Baltimore, succeeding Mr. Van Horn. **R. B. Mann,** superintendent of transportation of the Western lines, with headquarters at Cincinnati, has been promoted to general superintendent of the Southwest district, to succeed Mr. Mitchell and **C. R. Elkins,** transportation assistant on the Eastern lines at Pittsburgh, Pa., has been promoted to superintendent of transportation, succeeding Mr. Mann at Cincinnati. **John Hewes,** assistant superintendent of the Akron division, with headquarters at Akron, Ohio, has been appointed transportation assistant at Pittsburgh, replacing Mr. Elkins.

H. J. Bordwell, assistant general manager of the Eastern district of the Erie, with headquarters at Hornell, N. Y., has been appointed general manager of the New York district, with headquarters at Jersey City, N. J., succeeding J. M. Condon, who has been promoted to the position of assistant vice-president. Mr. Bordwell was born on December 7, 1885, at Buffalo, N. Y., and was educated in the public schools and business school. He entered railway service with the Erie in July, 1902, as telegraph operator and from July, 1911, until May, 1913, served as train dispatcher for the same road. At this time he was appointed chief dispatcher, serving in that capacity until June, 1914, when he became chief clerk to the superintendent. He subsequently served as chief dispatcher and trainmaster and in March, 1927, he was appointed superintendent of the Delaware division. He was transferred in the same capacity to the Susquehanna and

Tioga divisions in October, 1928, later being promoted to assistant general manager. Mr. Bordwell held this latter position until June 1, when his appointment as general manager became effective.

Traffic

T. J. Dowd, commercial agent of the Midland Valley and the Kansas, Oklahoma & Gulf at Muskogee, Okla., has been promoted to general agent at Oklahoma City, Okla.

William B. Harahan, secretary to the traffic vice-president of the Delaware, Lackawanna & Western, has been appointed industrial agent of that road, with headquarters at New York, effective July 1.

R. K. Horton, general agent of the New York Central, with headquarters at Buffalo, N. Y., has been appointed division freight and passenger agent, with headquarters at Corning, N. Y. **T. M. Shalloe** will succeed Mr. Horton as general agent at Buffalo.

W. J. Northup, commercial agent of the Delaware, Lackawanna & Western, with headquarters at New Haven, Conn., has been appointed manager of the Lackawanna terminal warehouses, succeeding **William A. Roe,** deceased. Mr. Northup will be replaced by **W. K. Martin** as commercial agent at New Haven, Conn.

Thomas J. Kenniff, who has been promoted to general freight agent of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., has been connected with that railway for more than 21 years. He was born at Marquette, Mich., on February 16, 1883, and attended the Normal school at Superior, Wis. Mr. Kenniff entered railway service on April 26, 1908, as an

Thomas J. Kenniff

agent on the Omaha and has been advanced successively through the positions of soliciting freight agent, commercial agent and general agent. In May, 1922, he was promoted to assistant general freight agent, with headquarters at St. Paul, a position he held until his further promotion to general freight agent on June 1.

J. W. Booth, assistant general freight agent of the Seaboard Air Line, with headquarters at Tampa, Fla., has been appointed assistant freight traffic manager, with the same headquarters. The position of assistant general freight agent has been abolished. **E. J. Parrish,** assistant freight traffic manager, with headquarters at Jacksonville, Fla., has been appointed assistant to the freight traffic manager, with headquarters at Norfolk, Va. **F. H. Bryant** will succeed Mr. Parrish as assistant freight traffic manager at Jacksonville. The above appointments become effective June 16.

Edward L. Pardee, who on June 1 was promoted to passenger traffic manager of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., entered the service of that railway at the age of 18 years as an office boy in the passenger department. He was born at Kilbourn, Wis., on December 19, 1877, and attended high school and a business college. Following his first employment with the Omaha in 1896, Mr. Pardee was advanced successively through the positions of stenog-

Edward L. Pardee

rapher and clerk in the passenger department, the baggage department and the ticket stock department and advertising clerk. In March, 1905, he was promoted to traveling passenger agent, then being further promoted to assistant general passenger agent on July 1, 1911. Mr. Pardee was again promoted to general passenger agent, with headquarters at St. Paul, in February, 1928, a position he retained until his recent advancement to passenger traffic manager.

Harry E. Huntington, who has been appointed assistant traffic manager of the Buffalo, Rochester & Pittsburgh, with headquarters at Rochester, N. Y., was born on July 23, 1869, at New Lisbon, Wis. He entered railway service in 1887 as clerk and city ticket agent for the Minneapolis, St. Paul & Sault Ste. Marie. From November, 1899, to May, 1901, he was city passenger agent of the Baltimore & Ohio at Pittsburgh, Pa., and on the latter date he was appointed chief clerk to the assistant general passenger agent of the Erie, with headquarters at Cleveland, O. He became division passenger agent of the same road at Elmira, N. Y., in August, 1902, and in May, 1905, he was advanced to general agent, passenger department. Mr. Huntington was appointed general passenger agent

Harry E. Huntington

of the Buffalo, Rochester & Pittsburgh in 1908, and served in that position continuously until his recent appointment as assistant traffic manager of that road.

Ferd W. Kuhn, general agent for the Chicago, Indianapolis & Louisville at Pittsburgh, Pa., has been promoted to general freight agent, with headquarters at Chicago, effective June 15, succeeding **P. C. Patterson,** who has been transferred at his own request to New York as general eastern agent. **J. R. Van Delinder,** assistant general freight agent, has been promoted to general freight agent, with headquarters as before at Chicago. **A. C. Tumy** retires on June 15 as assistant general freight agent at Chicago after serving the Monon in various capacities for 37 years. **W. H. Robinson,** division freight agent at Louisville, Ky., has been promoted to assistant general freight agent, with headquarters at the same point. **F. G. Ocasek,** division freight agent at Chicago, has been appointed coal traffic agent at the same point. **E. C. Helland,** commercial agent at Atlanta, Ga., has been promoted to general agent at Pittsburgh, succeeding Mr. Kuhn. **J. L. Fortier** has been appointed chief of the tariff bureau, with headquarters at Chicago. **Milton Smith, Jr.,** special freight traffic representative at Louisville, resigned on June 1 to engage in other business.

P. C. Patterson, who has been appointed general eastern agent of the Chicago, Indianapolis & Louisville, with headquarters at New York, has been engaged in railway work for nearly 35 years. He was born on May 5, 1873, at Mobile, Ala., and entered railroad service in 1893 as a night yard clerk on the Louisville & Nashville at that point. For the following 17 years he served in that capacity and as a billing clerk on various railroads, entering the freight solicitation branch of railroading in 1910 as commercial agent for the Mobile & Ohio at New Orleans, La. The following year Mr. Patterson was advanced to

general eastern agent, with headquarters at New York, and during the World War he served with the British Ministry of Shipping in the same city. At the close of federal control of the railroads on March 1, 1920, he was appointed foreign freight agent of the Southern, with headquarters at New York, then being appointed to a similar position with the Monon at New York in 1921. Mr. Patterson was promoted to general freight agent of the Monon, with headquarters at Chicago, on January 1, 1924, his appointment as general eastern agent at New York becoming effective on June 15.

Mechanical

J. Young, Jr., master mechanic in the Eastern region of the Pennsylvania, with headquarters at Williamsport, Pa., has been transferred to the Eastern division, Central region, at Canton, Ohio.

A. J. Pentland, master mechanic of the Winnipeg terminal division of the Canadian Pacific at Winnipeg, Man., has been transferred to the Kenora division at Kenora, Ont. **George Twist,** master mechanic of the Revelstoke division at Revelstoke, B. C., has been transferred to the Winnipeg Terminal division, to succeed Mr. Pentland.

K. T. Miller, assistant mechanical engineer of the Erie, with headquarters at Cleveland, Ohio, has been appointed engineer of tests, with headquarters at Meadville, Pa., succeeding **R. B. Watson,** who has been appointed assistant engineer of tests, with headquarters at the same point.

T. C. Baldwin, master mechanic on the New York, Chicago & St. Louis, with headquarters at Stoney Island, Chicago, has been transferred to Conneaut, O., where he will have jurisdiction over the entire Nickel Plate district. The position of master mechanic at Stoney Island, Chicago, has been abolished.

Engineering, Maintenance of Way and Signaling

G. A. Phillips, who has been appointed chief engineer of maintenance of the Lehigh Valley, with headquarters at Bethlehem, Pa., was born on September 28, 1889, at Dorchester, Mass. He was graduated from the University of Maine in 1911 and in February, 1912, entered the service of the Lehigh Valley as levelman and transit man, remaining in that position until September, 1915, when he became assistant engineer of the Seneca division. From April, 1916, to November, 1916, he served as supervisor of track at Delano, Pa., then being appointed division engineer, with headquarters at Hazleton, Pa. He was transferred in the same capacity to the Seneca division in August, 1920, and in April, 1926, he was appointed engineer maintenance of way of the system, serving in that position until his recent appointment as chief engineer of maintenance, which became effective on June 1.

Special

Ben Deacon, United States press representative of the Canadian National, with headquarters at New York, has been promoted to the assistant directorship of publicity, with headquarters at Montreal, succeeding **C. F. Goldthwaite,** whose appointment as manager of the advertising department was announced in the *Railway Age* of March 23.

Obituary

G. C. Morris, trainmaster on the Portland division of the Southern Pacific, with headquarters at Portland, Ore., died at the Good Samaritan Hospital in that city on June 4.

J. Walter Scott, for 32 years owner and manager of the Railway Folder-Schedule Distributing Company of San Francisco, Cal., died at his home at Oakland, Cal., on May 29, following a heart attack.

Frank T. Fox, division superintendent on the Chicago, Milwaukee & St. Paul, with headquarters at Minneapolis, Minn., from 1896 to 1907, died at his home at Montesano, Wash., on May 26, following an extended illness. Mr. Fox was born at Columbus, Wis., on May 6, 1857, and entered railway service at the age of 17 years in the operating department of the Milwaukee.

David N. Bell, passenger traffic manager of the Pennsylvania, with headquarters at Philadelphia, Pa., died from pneumonia at his home in Wayne, Pa., on June 9. Mr. Bell had been in the service of the Pennsylvania for nearly 45 years, having entered the passenger department of that road in July, 1885. He became assistant advertising agent in April, 1891, and from November, 1896, to July, 1903, he was tourist agent. He was then appointed assistant to the general passenger agent and in August, 1906, he was appointed division ticket agent of the New Jersey division. He was advanced to the position of assistant general passenger agent in June, 1910, and three years later he was again advanced to general passenger agent of the road. Mr. Bell was appointed passenger traffic manager of the Eastern region of the Pennsylvania in 1920 and served in that capacity continuously until his death.

T. W. Coe, superintendent of motive power of the New York, Chicago & St. Louis, with headquarters at Cleveland, O., who died in that city on May 18, had been connected with the mechanical departments of several railways for nearly 33 years. He was born on December 4, 1879, at Norwalk, O. After attending high school in that city he entered railway service as a machinist apprentice on the Lake Shore & Michigan Southern (now part of the New York Central) at Norwalk on December 21, 1896. When he had finished a four-year apprenticeship at that point he was advanced to machinist at the Collinwood shops, Cleveland, where he remained until 1901 when he became a

T. W. Coe

locomotive foreman on the Wheeling & Lake Erie at Dillonvale, O. From 1904 to 1916 Mr. Coe served successively on the Lake Shore as passenger enginehouse foreman at Elkhart, Ind., as night general foreman at Englewood, Chicago, as general foreman of both passenger and freight enginehouses at Elkhart and as superintendent of shops at Elkhart. In March, 1916, he was appointed master mechanic on the Indiana Harbor Belt at Chicago where he remained until November, 1917, when he was appointed to a similar position on the Nickel Plate at Conneaut, O. Mr. Coe had been superintendent of motive power of the Nickel Plate since January, 1927.

* * *

A. C. L. Photo

On the Atlantic Coast Line Near Monteith, Ga.